

FIG.1

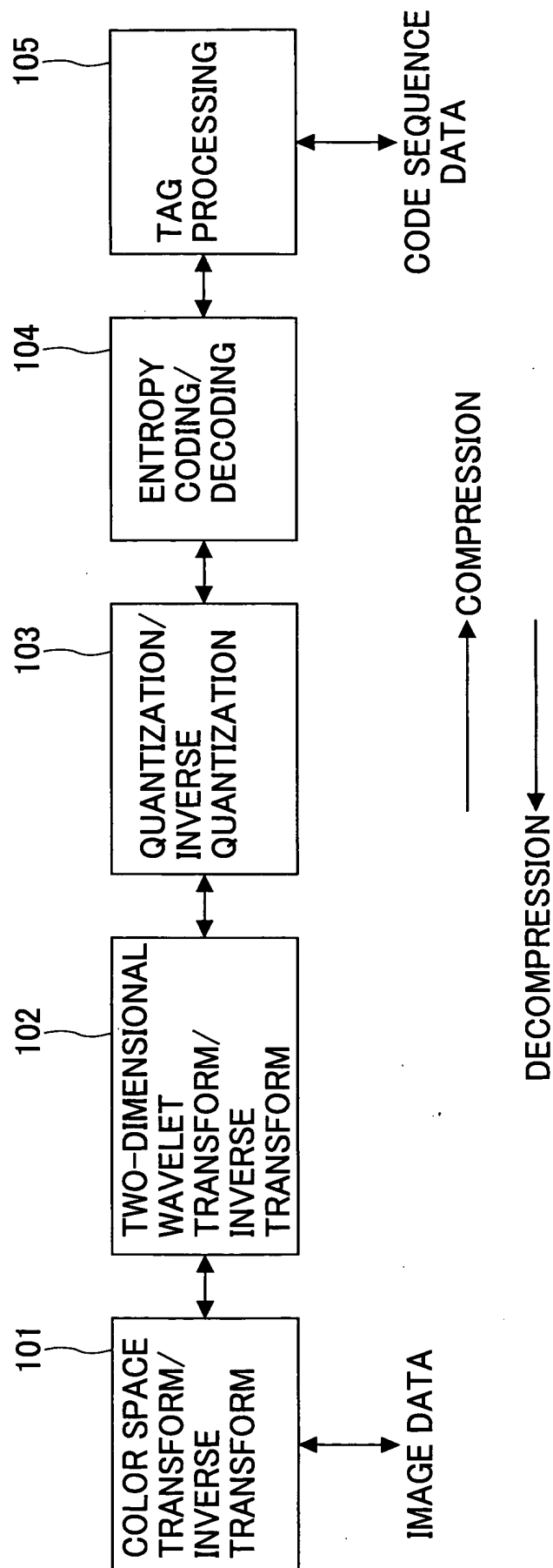


FIG.2

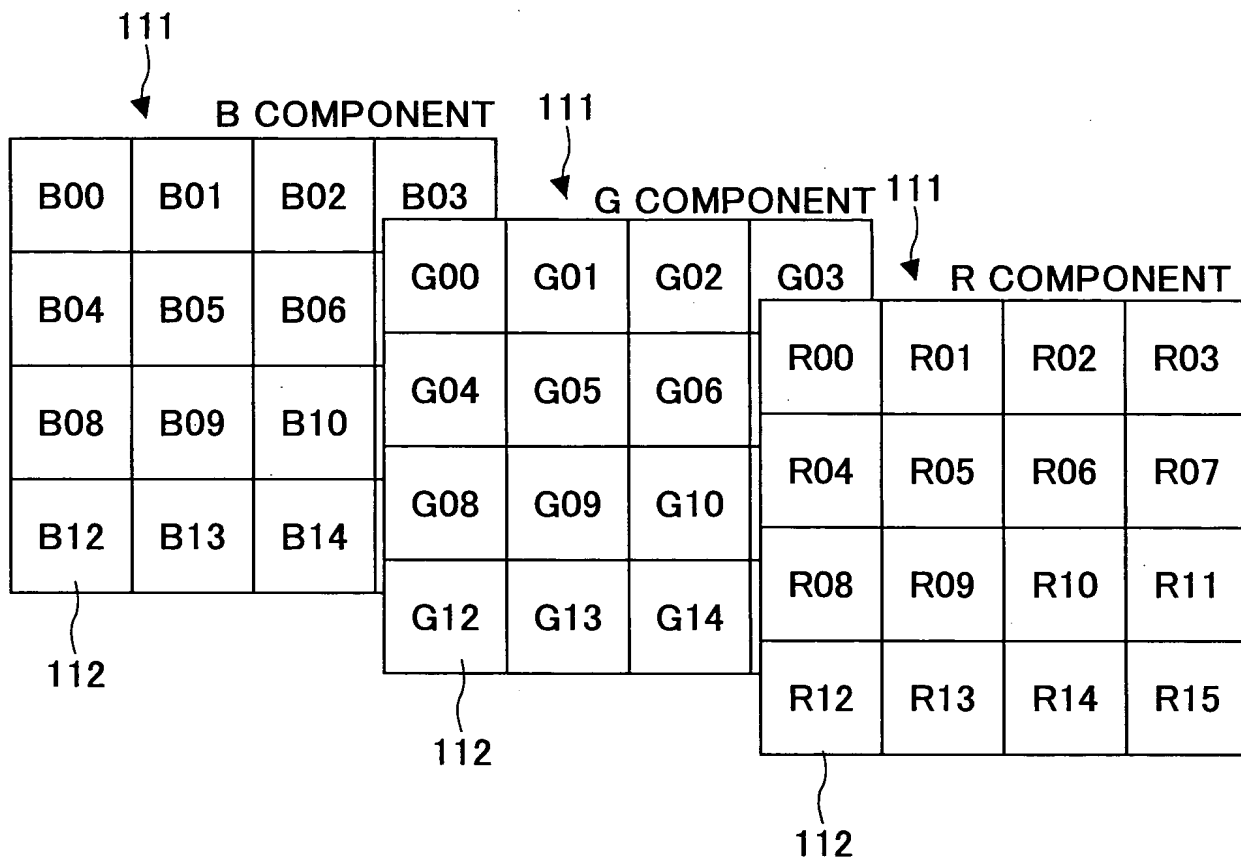
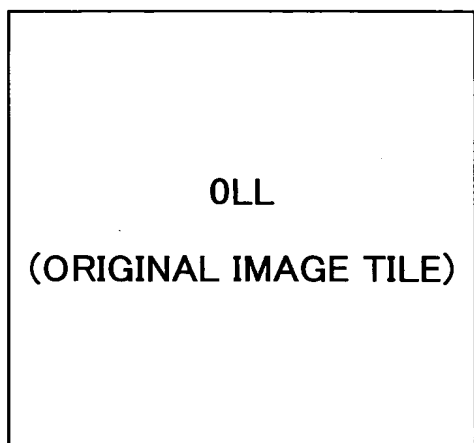
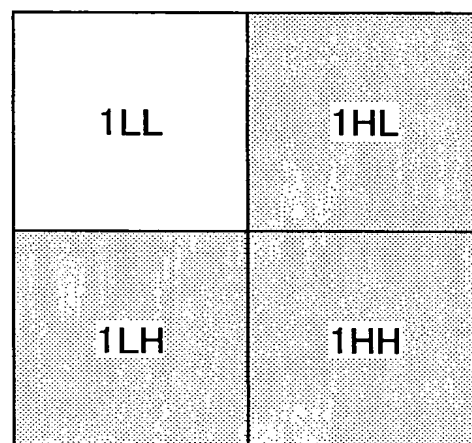


FIG.3A



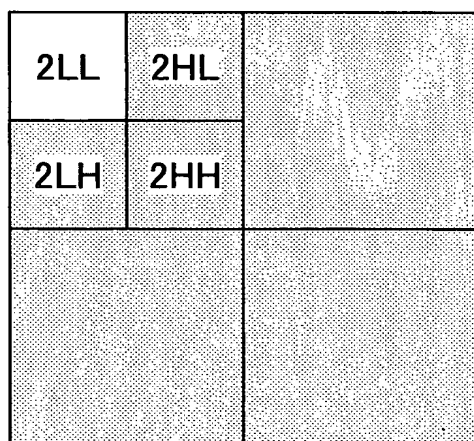
DECOMPOSITION_LEVEL_0

FIG.3B



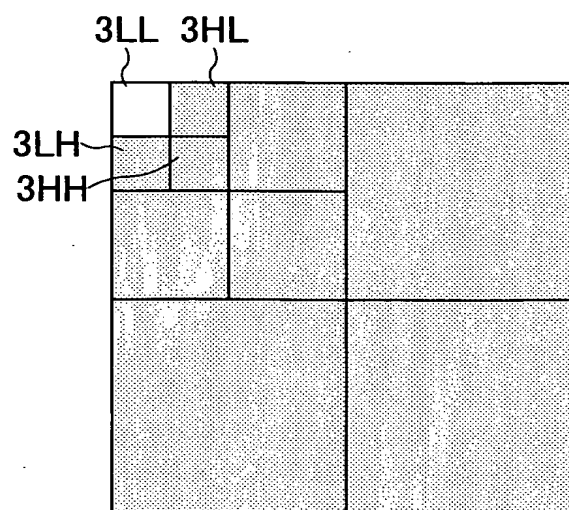
DECOMPOSITION_LEVEL_1

FIG.3C



DECOMPOSITION_LEVEL_2

FIG.3D



DECOMPOSITION_LEVEL_3

FIG.4

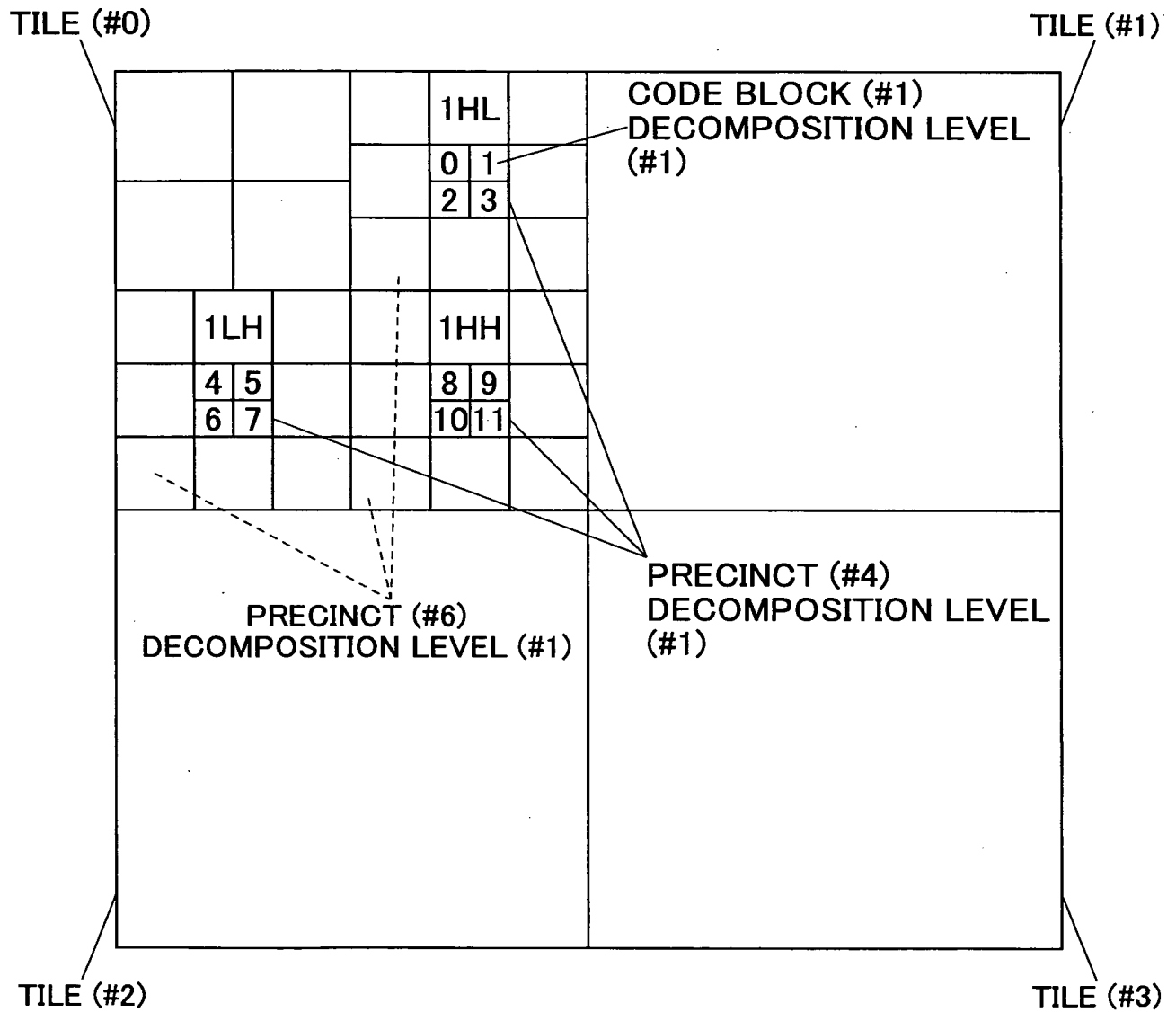


FIG.5A

DECOMPOSITION LEVEL 1

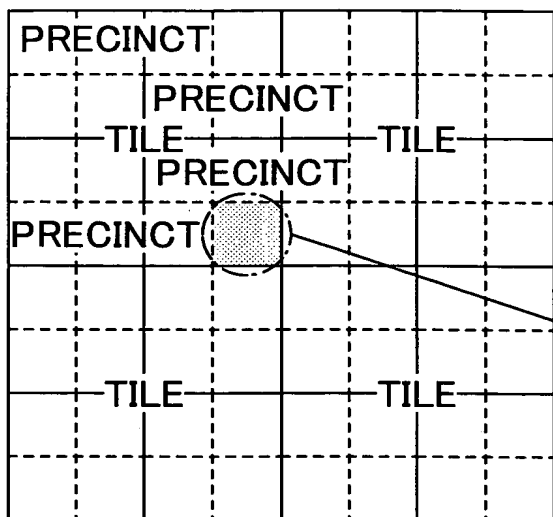


FIG.5B

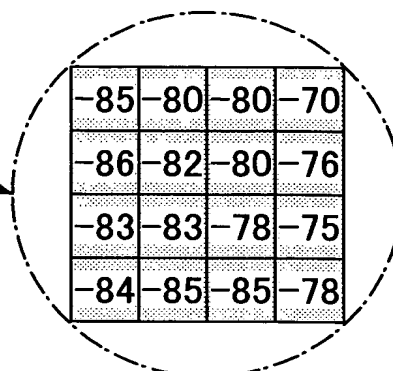


FIG.5C

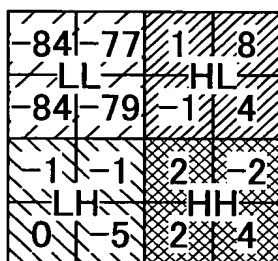


FIG.5D

		-84	-84	-77	-79
LAYER # = 0		-	-	-	-
LAYER # = 1		1	1	1	1
		0	0	0	0
LAYER # = 2		1	1	0	0
		0	0	1	1
LAYER # = 3		1	1	1	1
		0	0	0	1
		0	0	1	1
		1LL			

FIG.5E

		1	-1	8	4
		+	-	+	+
		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	1	0
		0	0	0	1
		0	0	0	0
		1	1	0	0
		1HL			

COEFFICIENT
VALUE

COEFFICIENT
SIGN (MSB)

COEFFICIENT
ABSOLUTE
VALUE
(LSB)

FIG.5F

		-1	0	-1	-5
		-	0	-	-
		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	1
		0	0	0	0
		1	0	1	1
		1LH			

FIG.5G

		2	2	-2	4
		+	+	-	+
		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	1
		1	1	1	0
		0	0	0	0
		1HH			

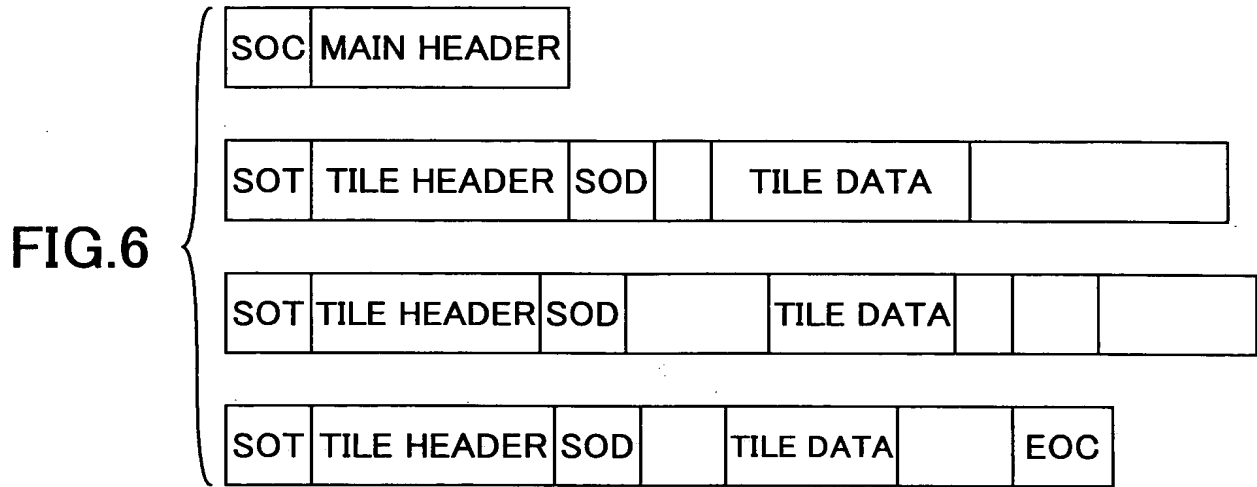


FIG.7

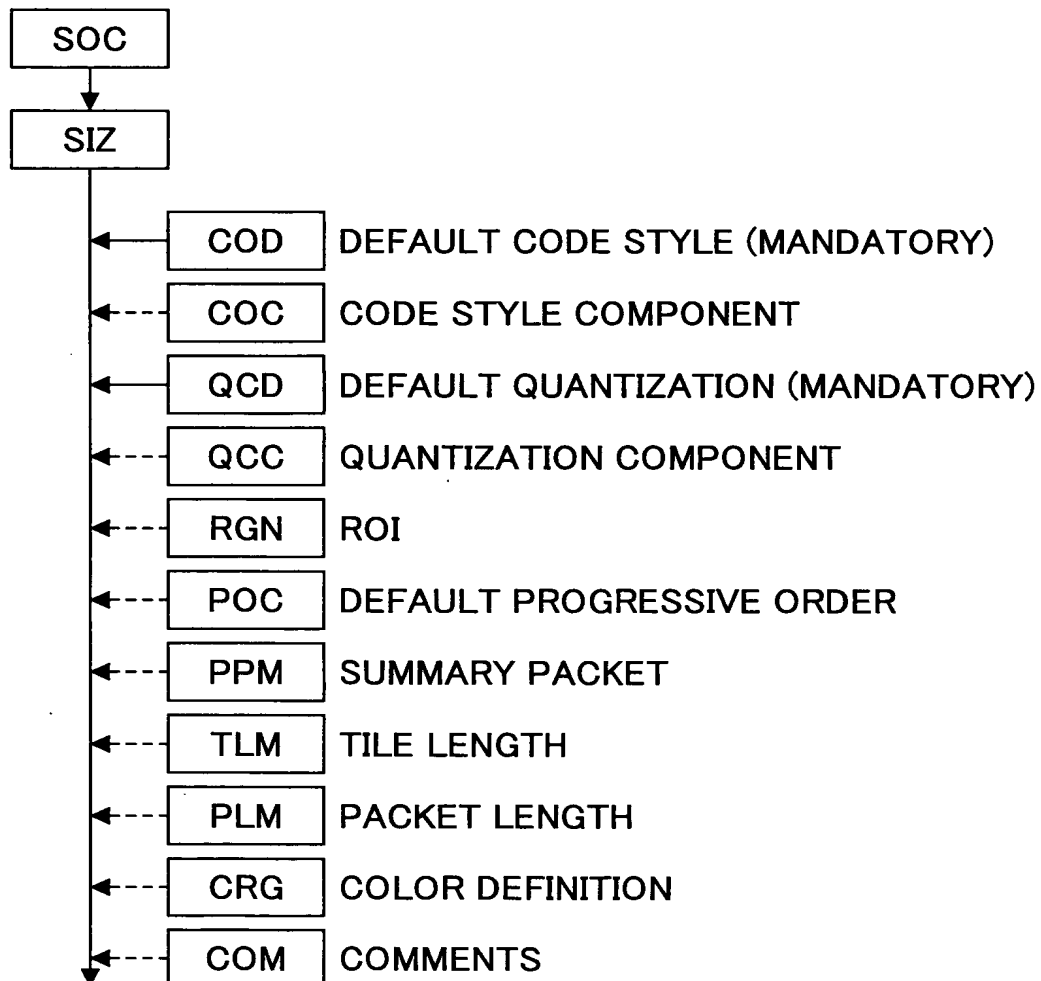


FIG.8A

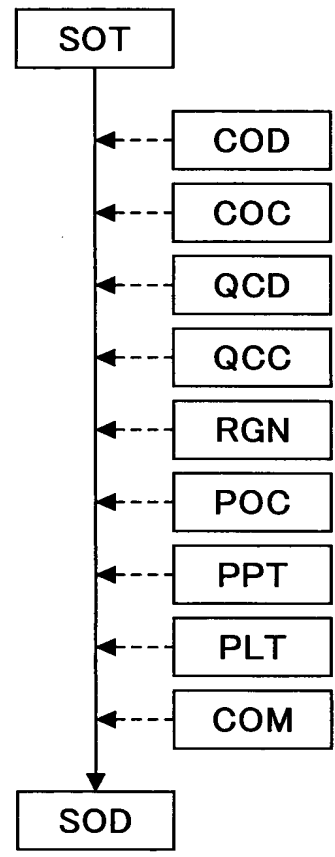


FIG.8B

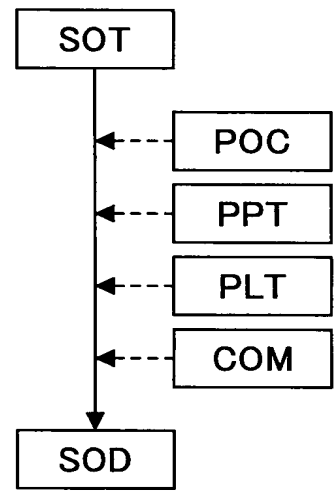


FIG.9

SOT	Lsot	Isot	Psot	TPsot	TNsot
-----	------	------	------	-------	-------

FIG.10

PARAMETER	SIZE (BITS)	VALUES
EOC	16	0xffd9

FIG.11

TLM	Lt _{lm}	Zt _{lm}	St _{lm}	Tt _{lm} (i)	Pt _{lm} (i)	...	Tt _{lm} (n)	Pt _{lm} (n)
-----	------------------	------------------	------------------	-------------------------	-------------------------	-----	-------------------------	-------------------------

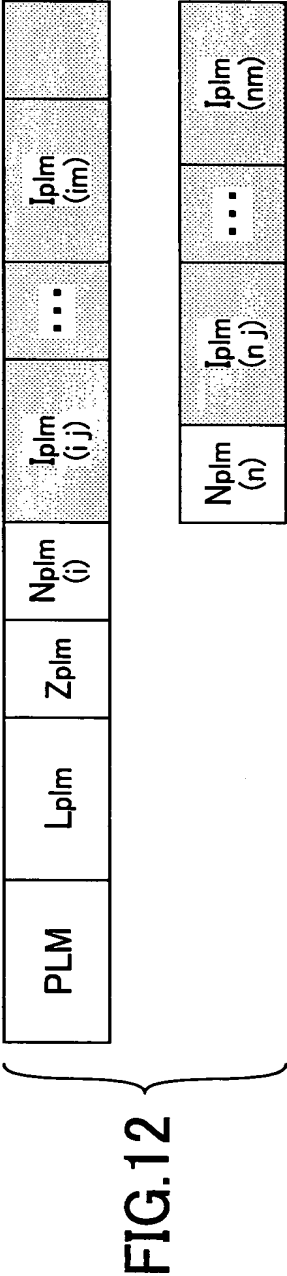


FIG.13

PLT	L _{plt}	Z _{plt}	I _{plt} _(i)	...	I _{plt} _(n)
-----	------------------	------------------	---------------------------------	-----	---------------------------------

```

graph TD
    PPM[PPM] --> Lppm[Lppm]
    PPM --> Zppm[Zppm]
    PPM --> Nppm_i[Nppm(i)]
    PPM --> Nppm_ij[Nppm(i,j)]
    PPM --> Dots1[...]
    PPM --> Ippm_im[Ippm(im)]
    
    subgraph Group1 [ ]
        Lppm
        Zppm
        Nppm_i
        Nppm_ij
    end
    
    Nppm_n[Nppm(n)] --> Ippm_nj[Ippm(n,j)]
    Nppm_n --> Dots2[...]
    Nppm_n --> Ippm_nm[Ippm(nm)]
  
```

FIG.14

FIG.15

PPT	Lp _{ppt}	Z _{ppt}	I _{ppt} (i)	...	I _{ppt} (n)
-----	-------------------	------------------	-------------------------	-----	-------------------------

FIG.16

COM	L _{com}	R _{com}	C _{com} (i)	...	C _{com} (n)
-----	------------------	------------------	-------------------------	-----	-------------------------

FIG.17

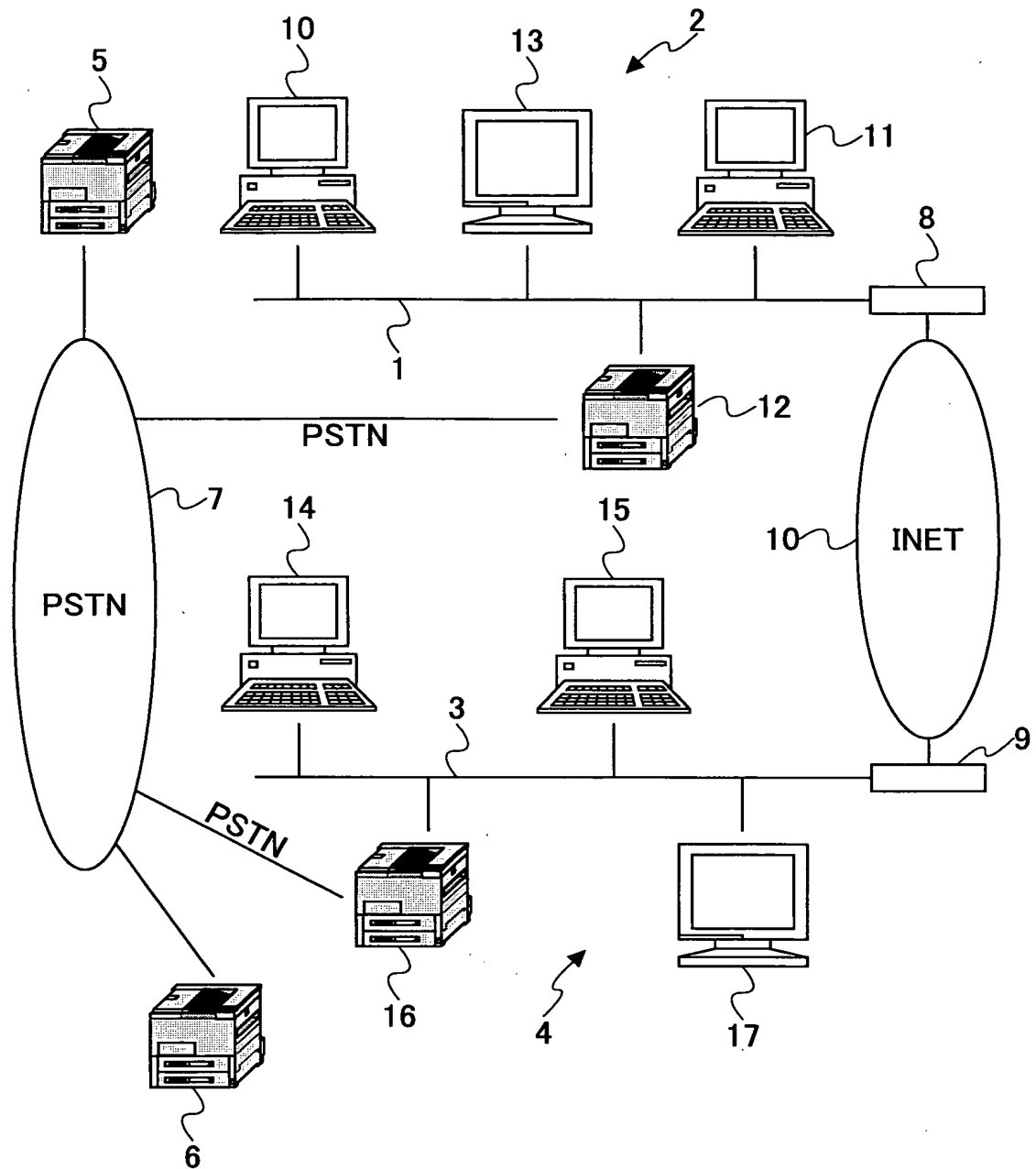


FIG. 18

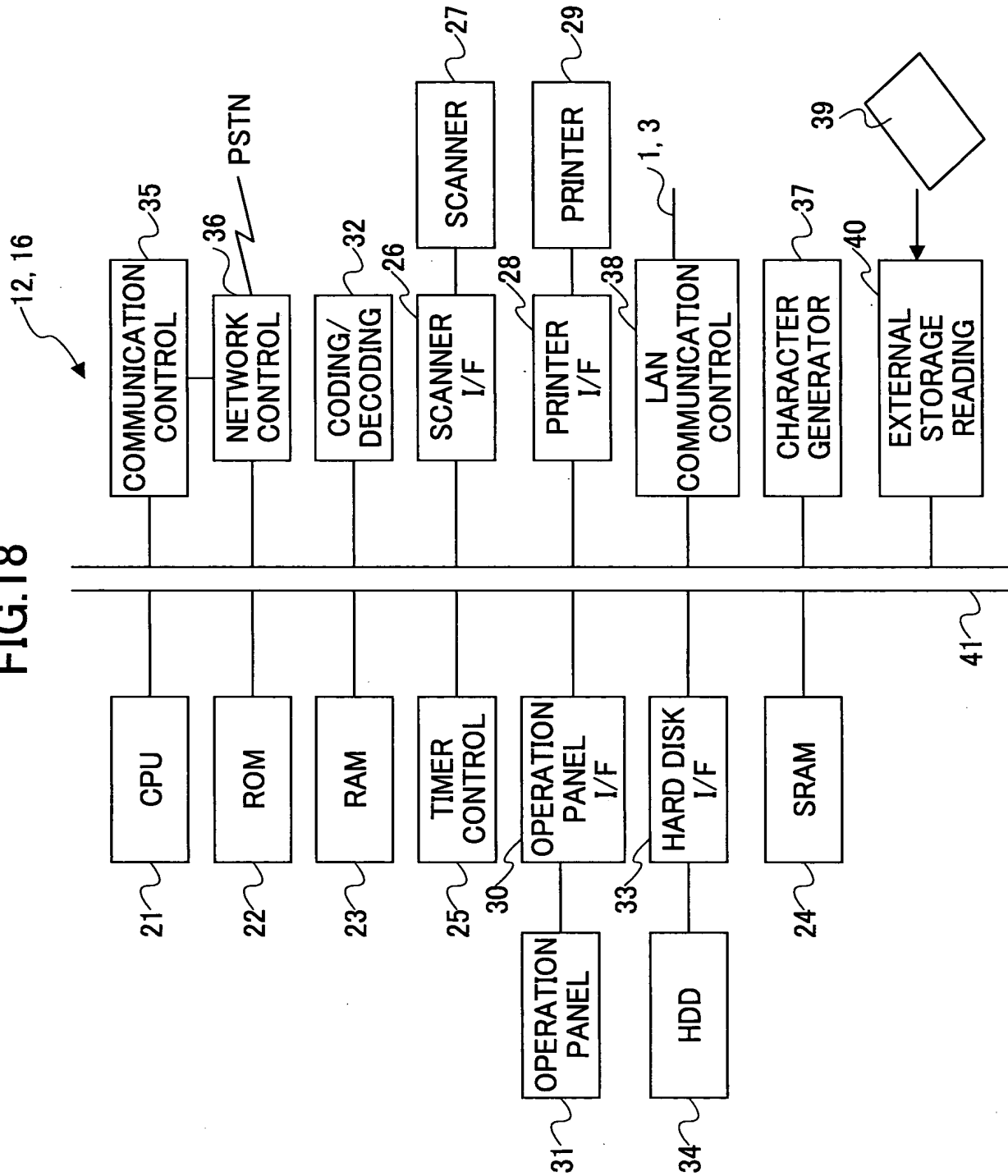


FIG.19

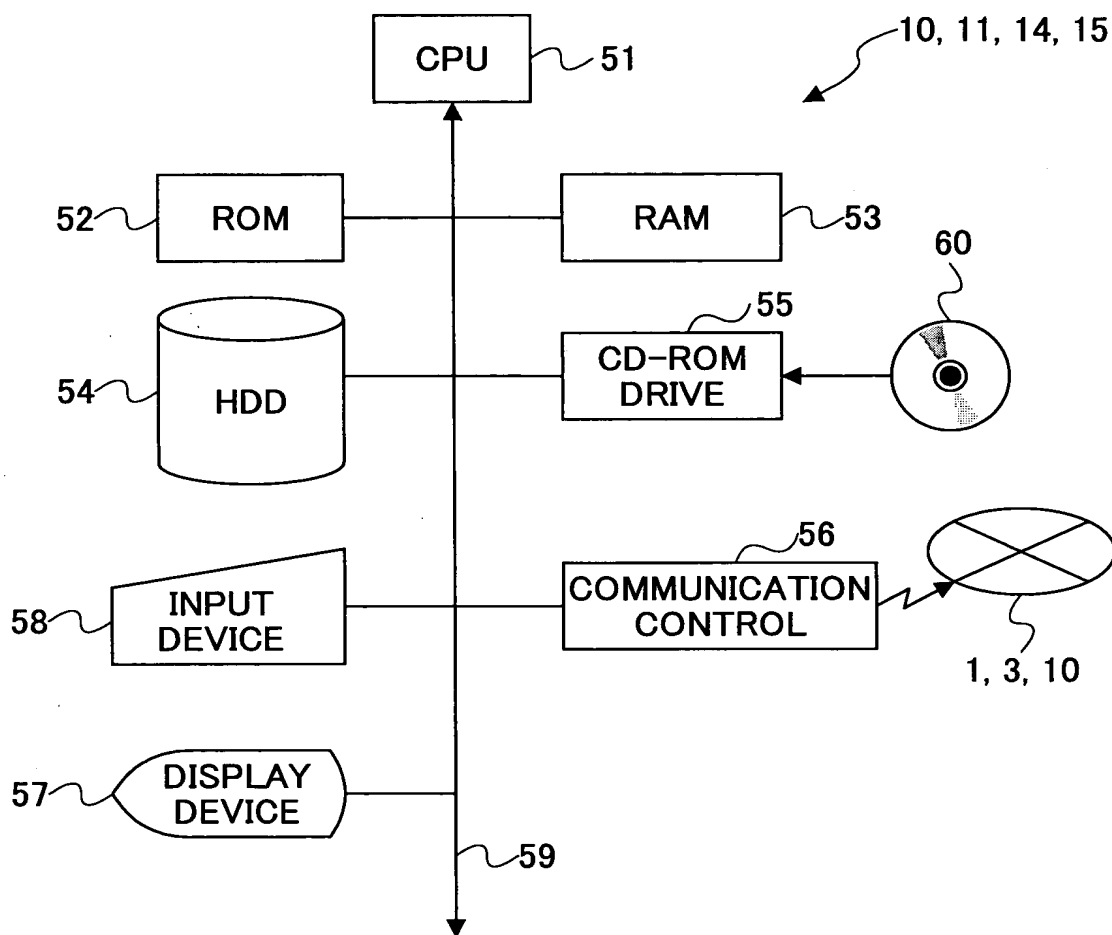


FIG.20A

TILE-PART HEADER

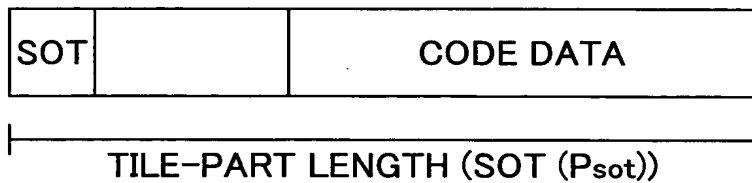


FIG.20B

TILE-PART HEADER

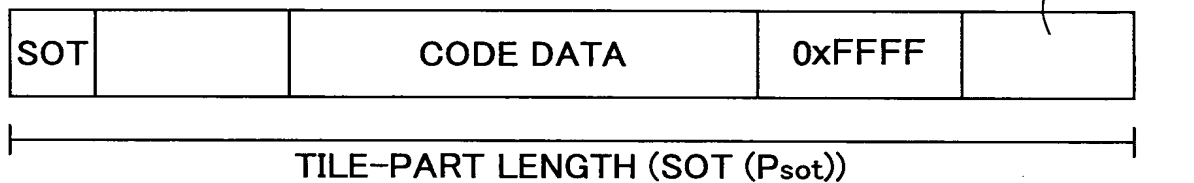


FIG.21

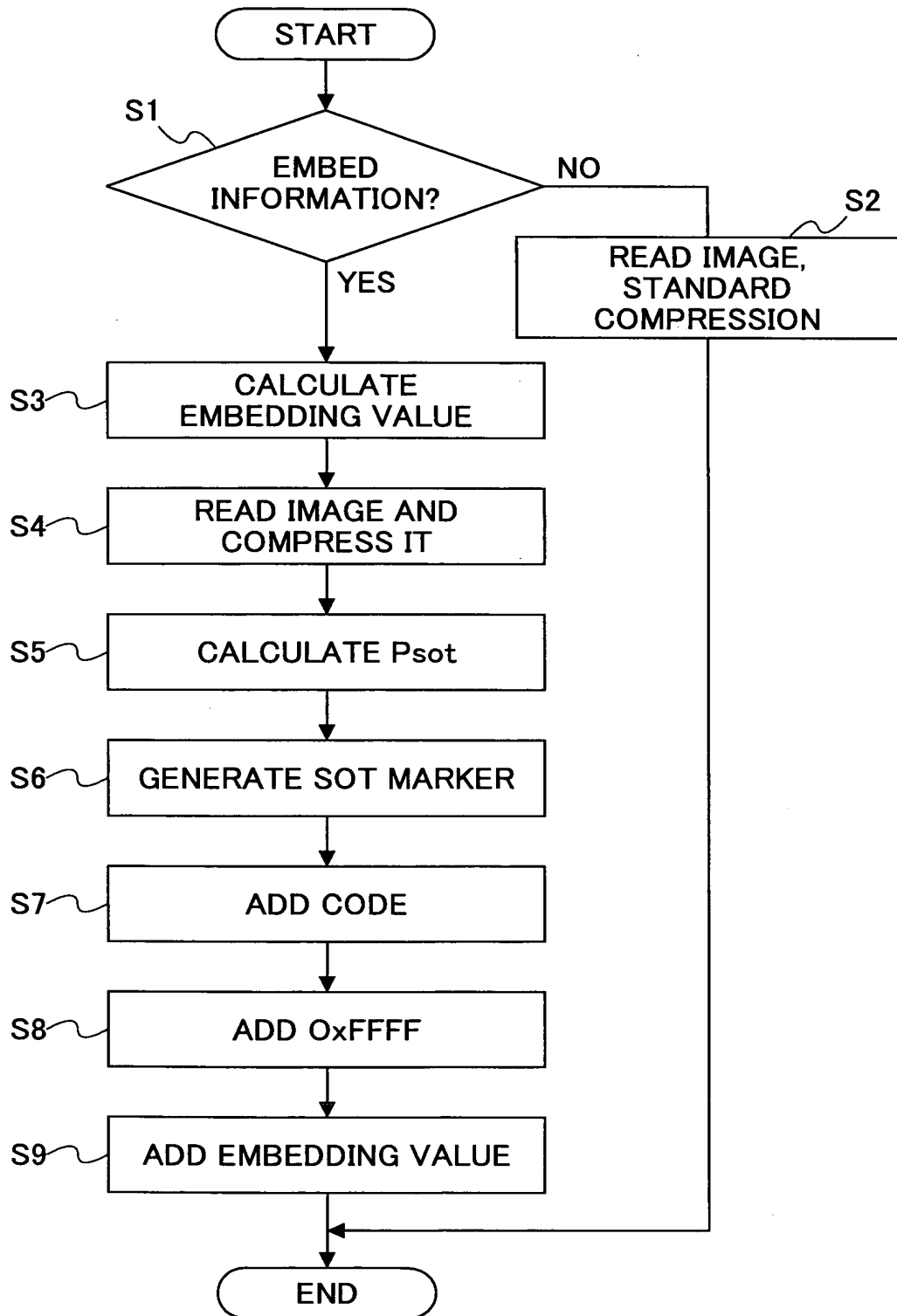
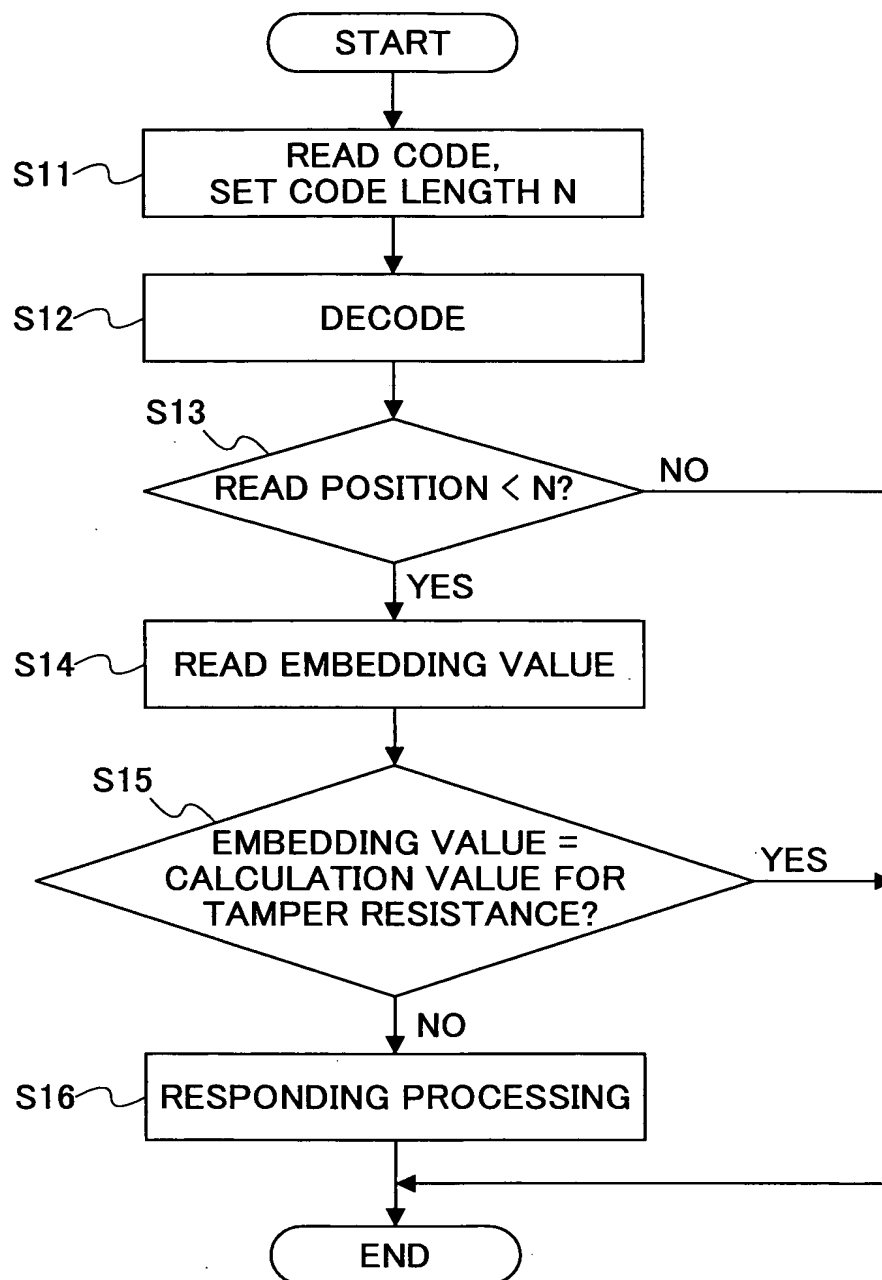


FIG.22



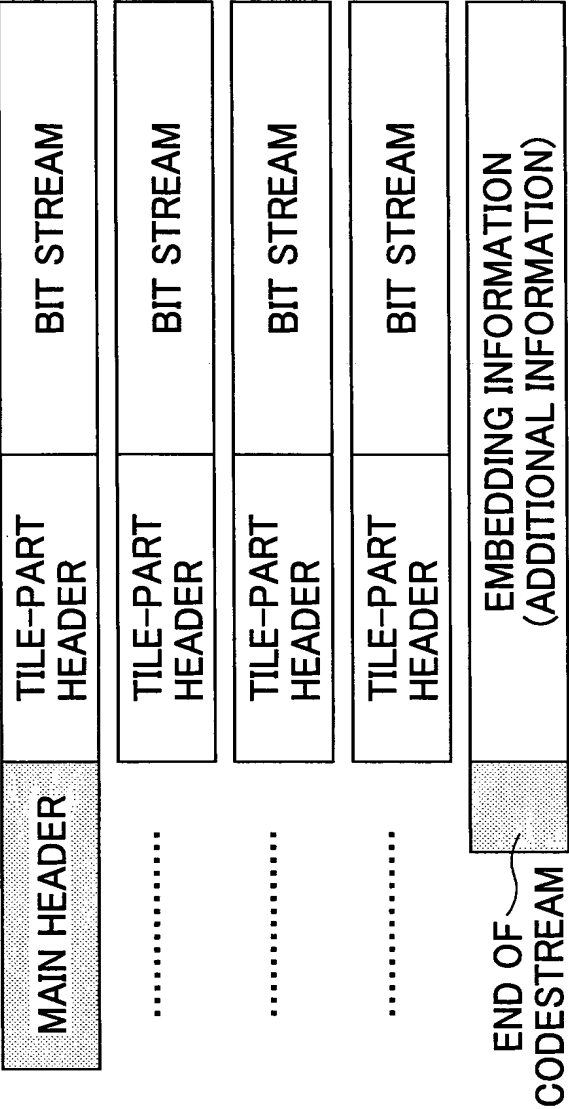
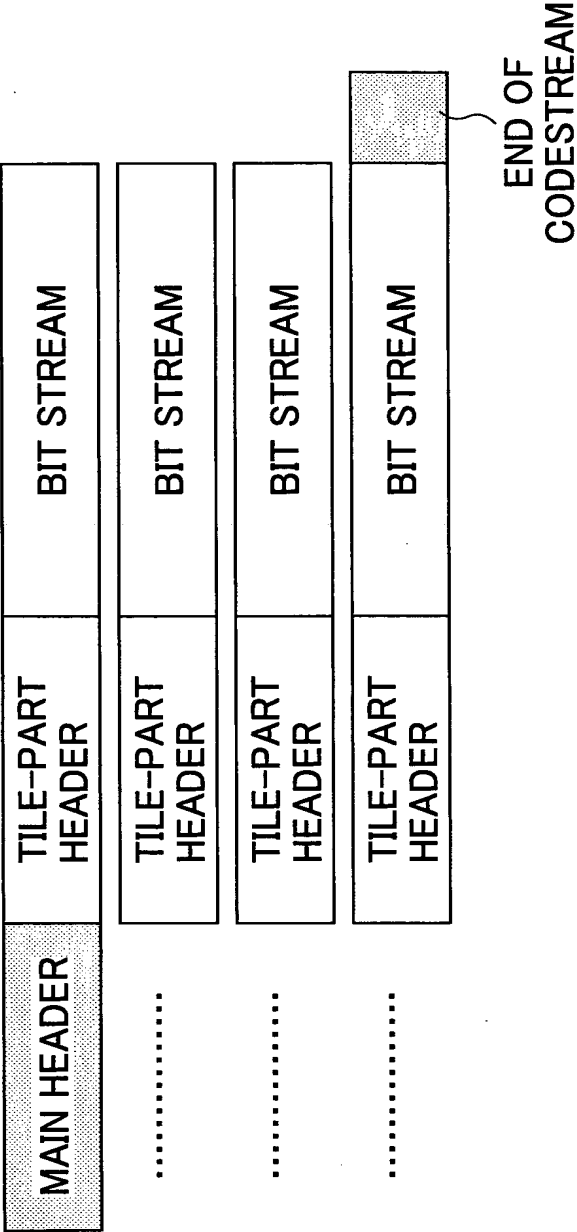


FIG.24

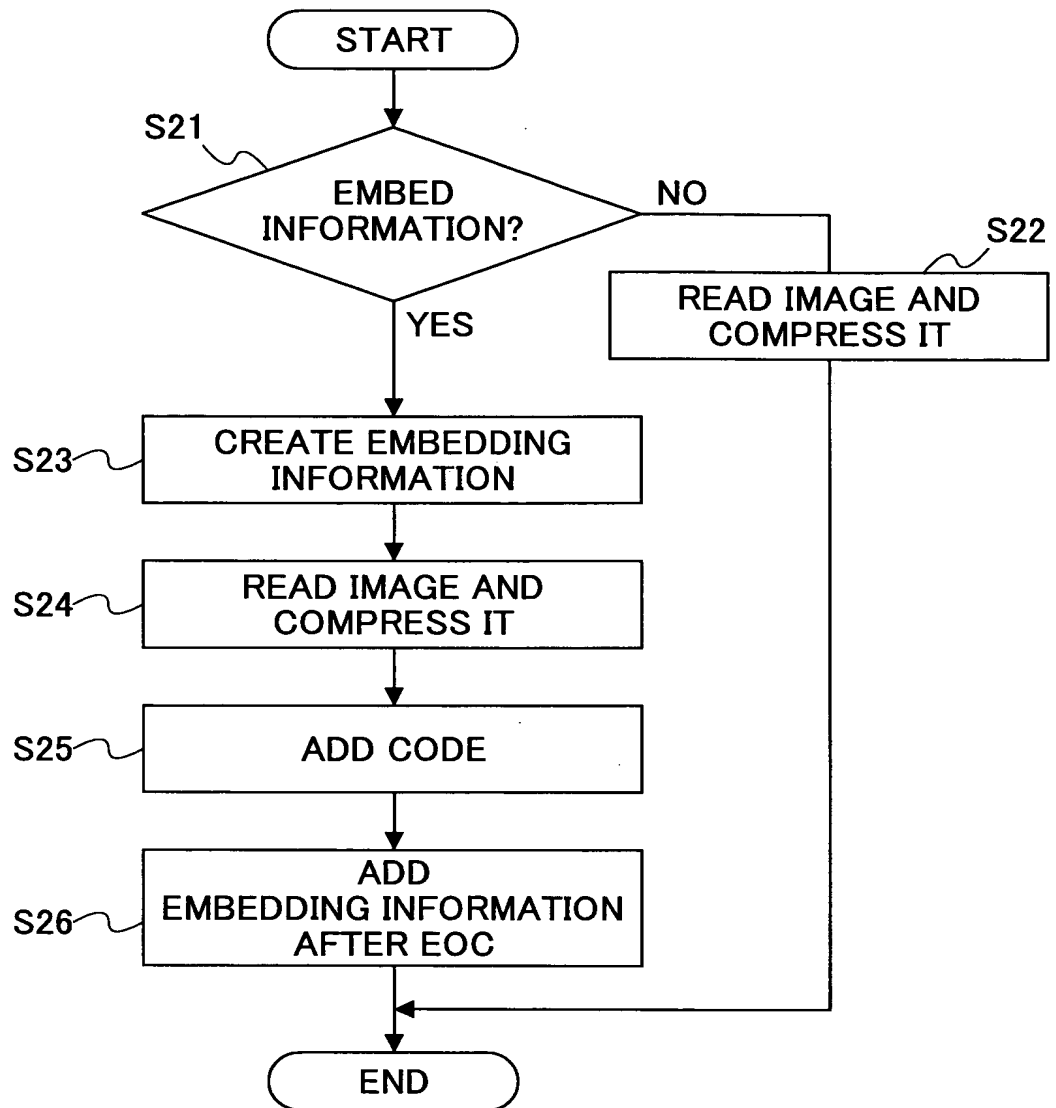


FIG.25

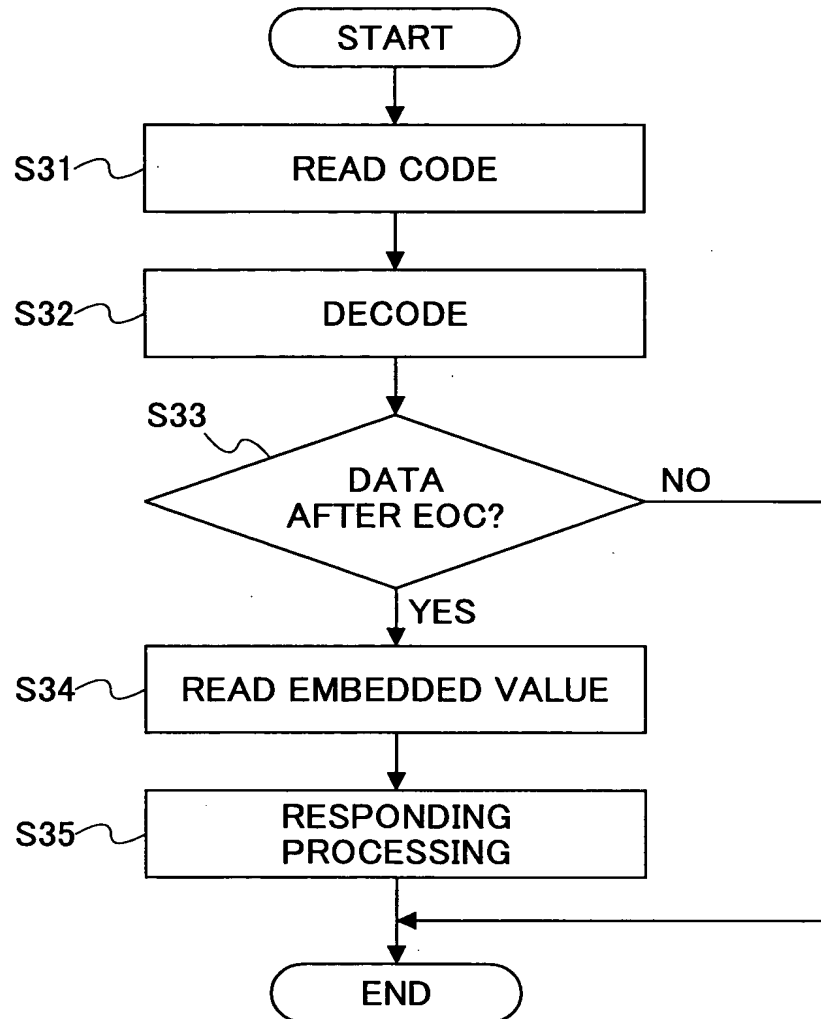


FIG.26

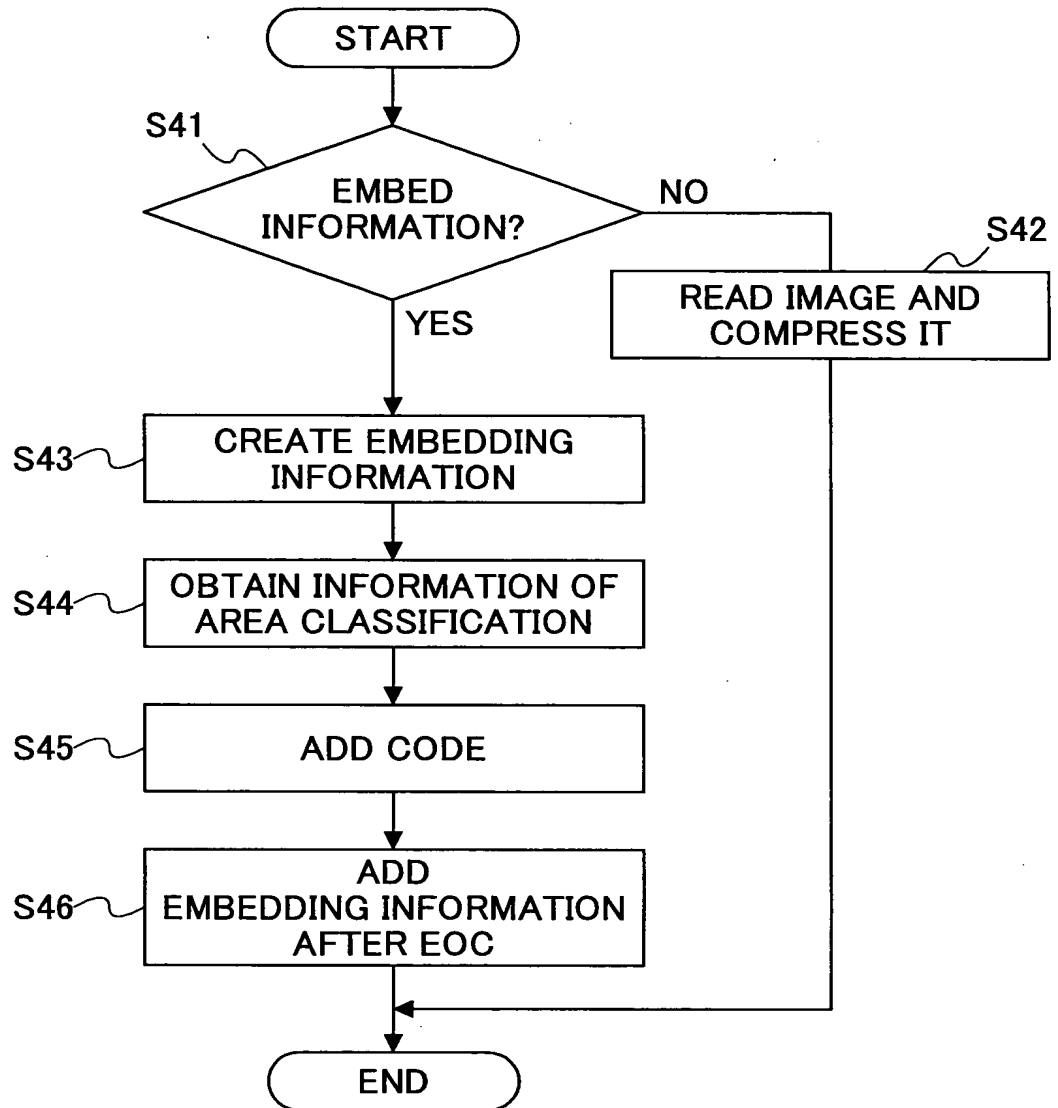


FIG.27

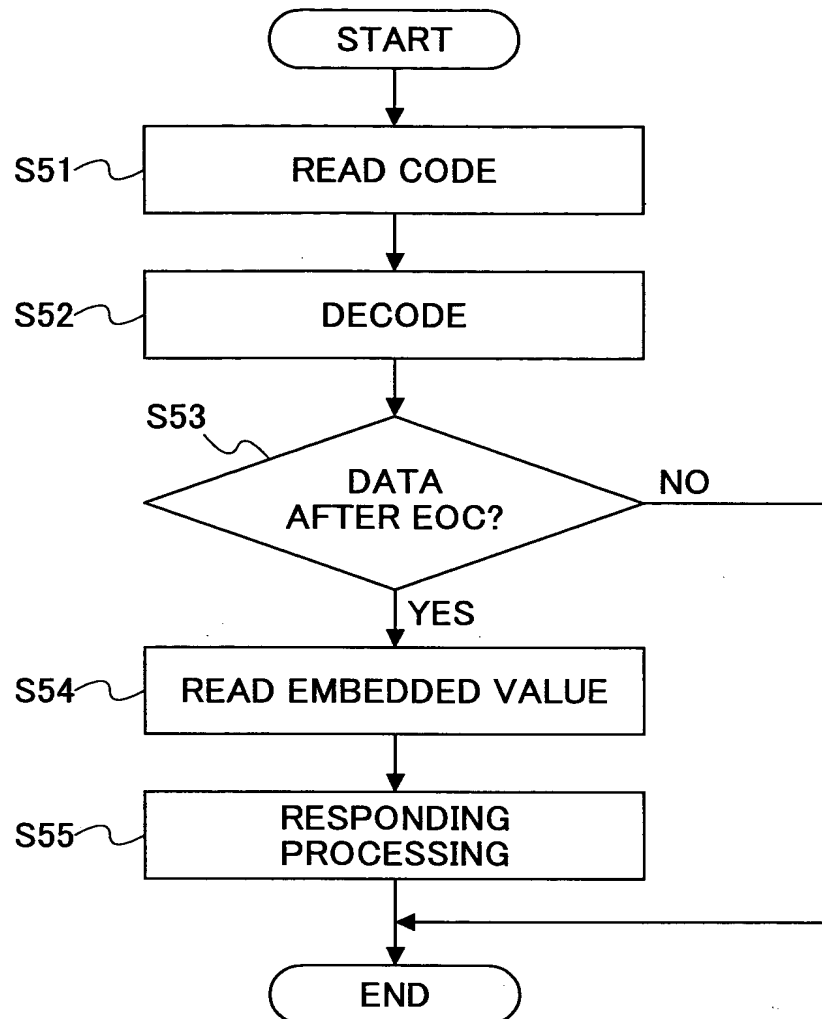


FIG.28

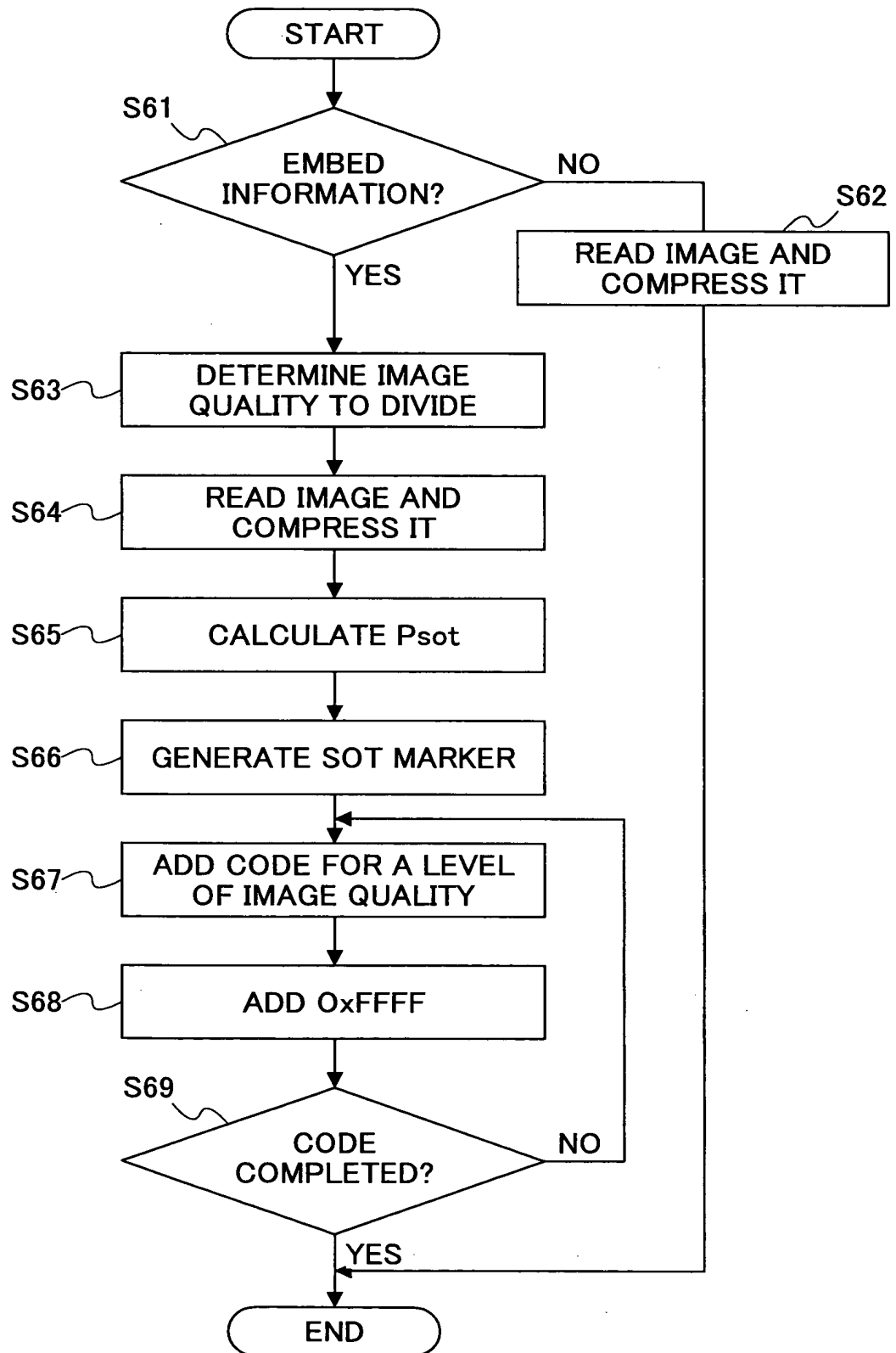


FIG.29

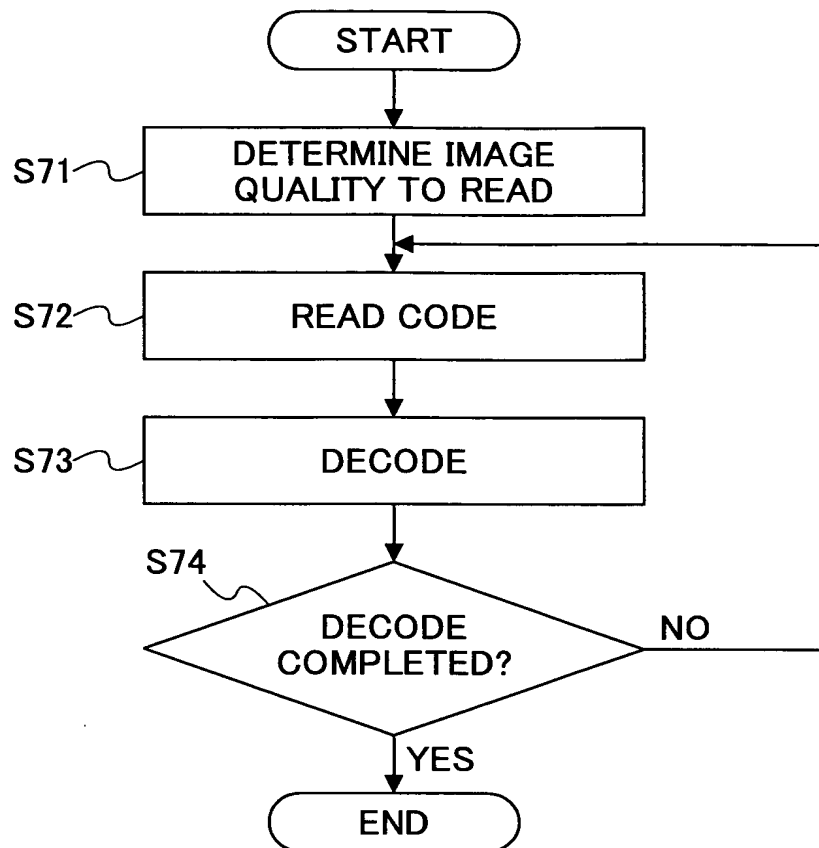


FIG.30

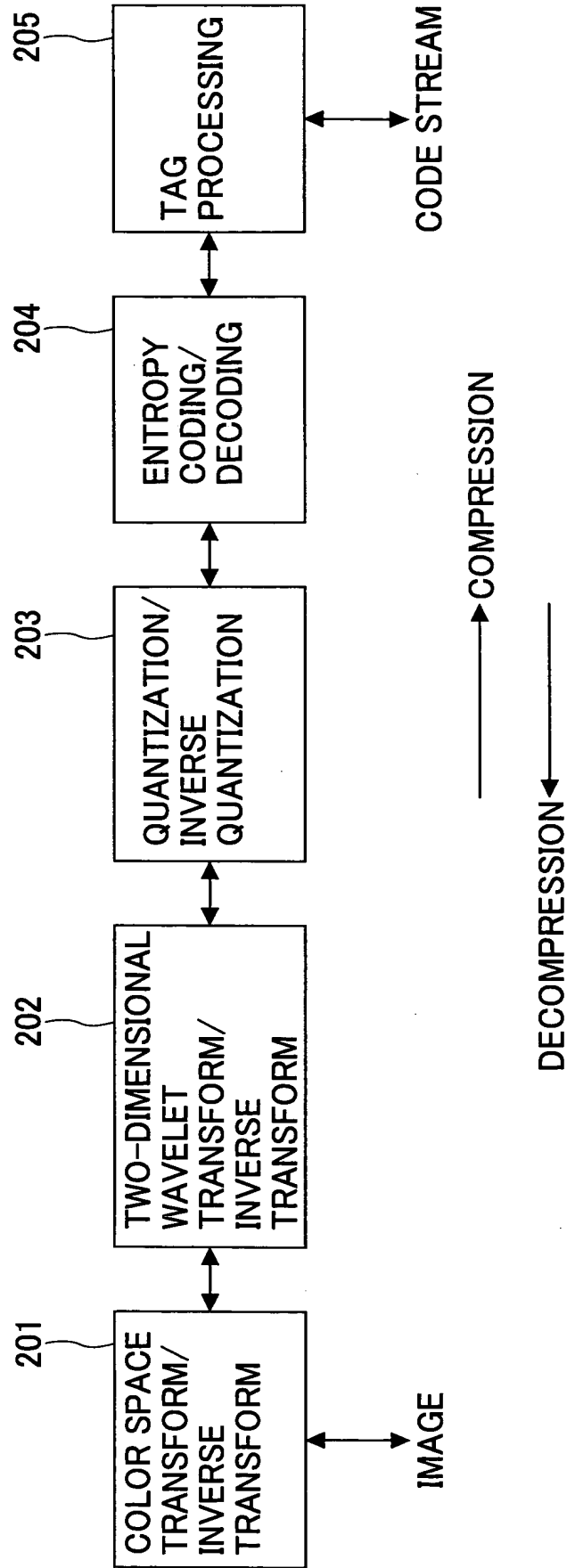


FIG.31

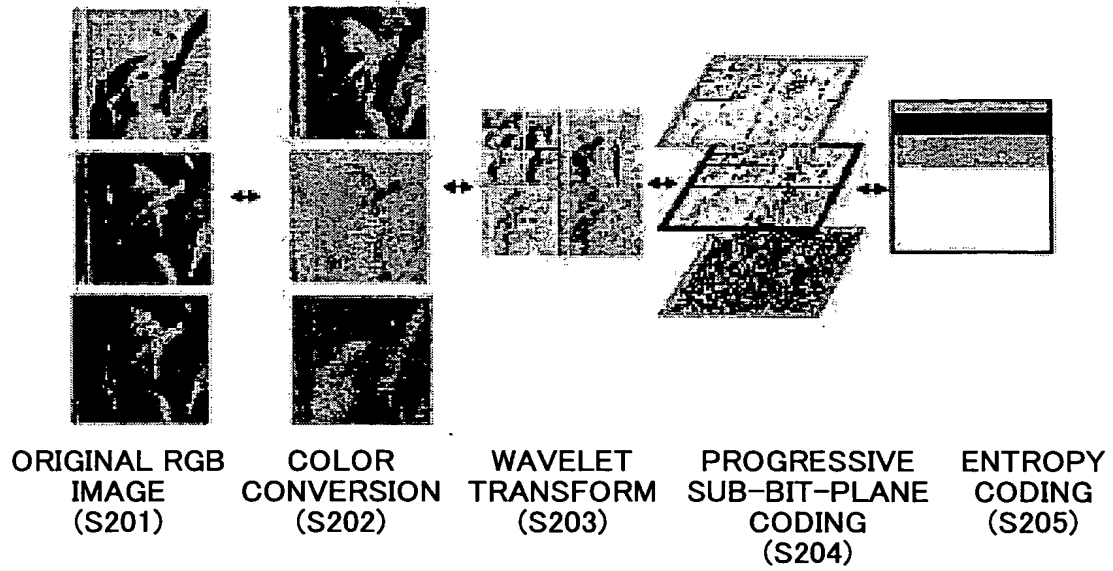


FIG.32A

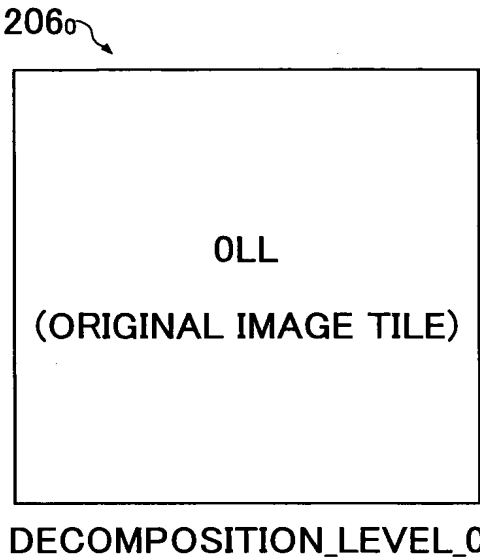


FIG.32B

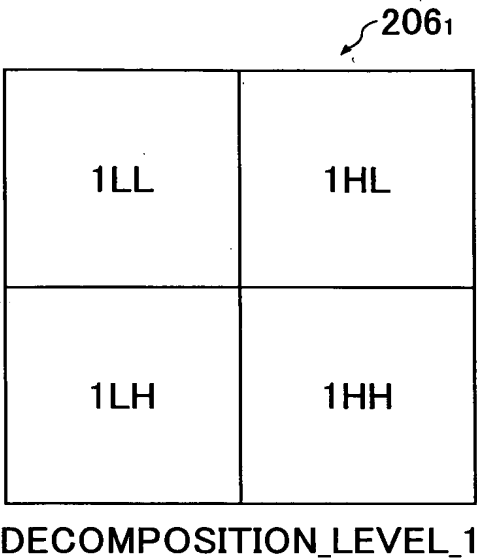


FIG.32C

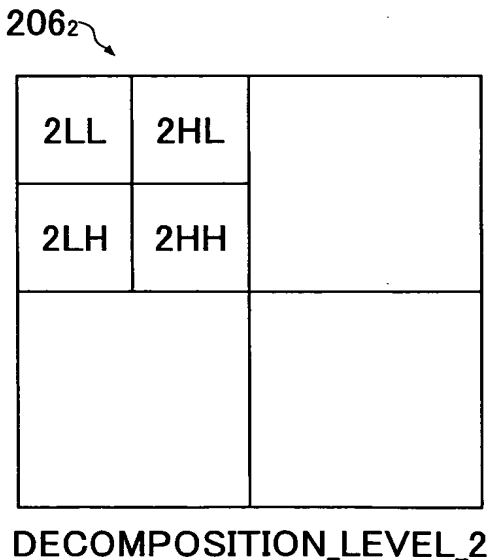


FIG.32D

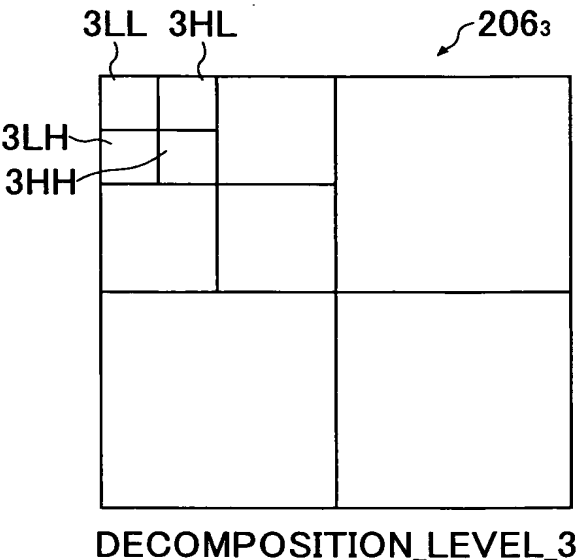


FIG.33

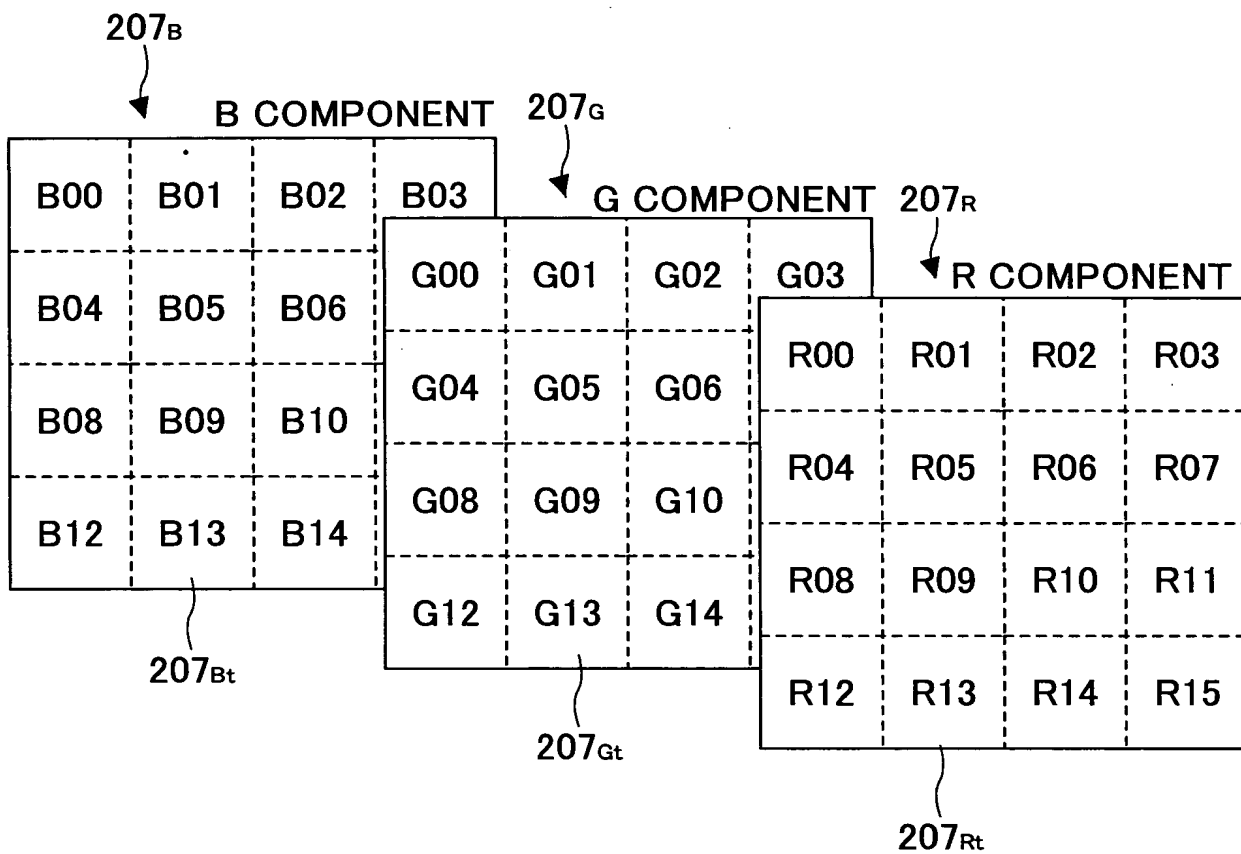


FIG.34

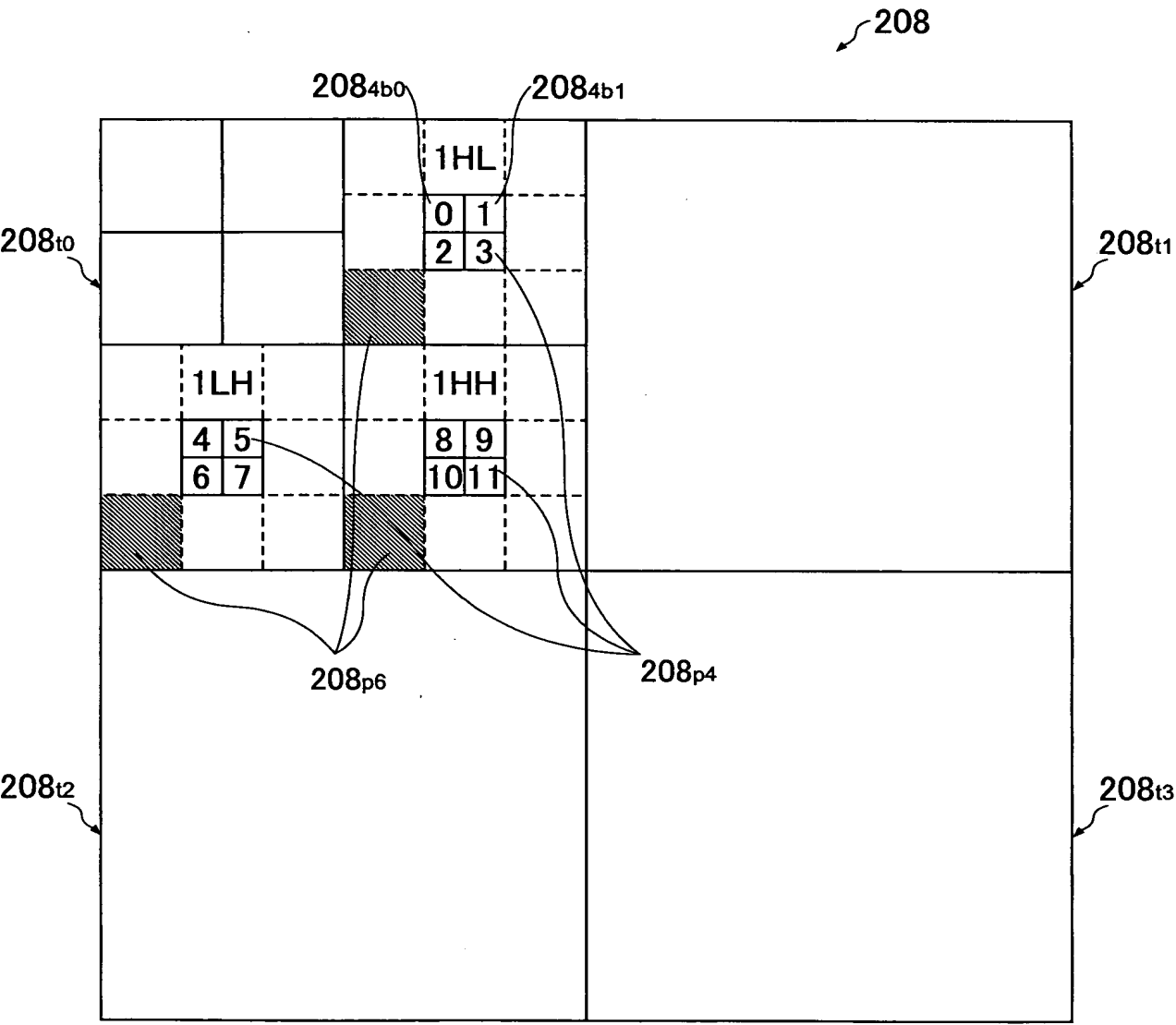


FIG.35

SUB-BAND		2LL		2HL		2LH		2HH		1HL		1LH		1HH				
PRECINCT No.		0	1	2	3	0	1	2	3	0	1	2	3	4	5	6	7	8
SUB-BIT PLANE																		
12-TH BIT CODE		0	1	2	3	4	5	6	7	4	5	6	7	4	5	6	7	4
11-TH BIT CODE		8	9	10	11	12	13	14	15	12	13	14	15	12	13	14	15	12
10-TH BIT CODE		16	17	18	19	20	61	62	63	20	21	22	23	60	61	62	63	20
9-TH BIT CODE		24	25	26	27	56	57	58	59	56	57	58	59	61	62	63	64	106
8-TH BIT CODE		52	53	54	55	77	78	79	80	77	78	79	80	102	103	104	105	127
7-TH BIT CODE		173	174	175	176	98	99	100	101	98	99	100	101	123	124	125	126	148
6-TH BIT CODE		64	65	66	67	119	120	121	122	119	120	121	122	144	145	146	147	169
5-TH BIT CODE		115	116	117	118	140	141	142	143	140	141	142	143	165	166	167	168	190
4-TH BIT CODE		136	137	138	139	161	162	163	164	161	162	163	164	186	187	188	189	207
3-RD BIT CODE		157	158	159	160	182	183	184	185	182	183	184	185	203	204	205	206	220
2-ND BIT CODE		176	179	180	181	190	200	201	202	199	200	201	202	216	217	218	219	
1-ST BIT CODE																		

FIG. 36

[illegible]

LSB

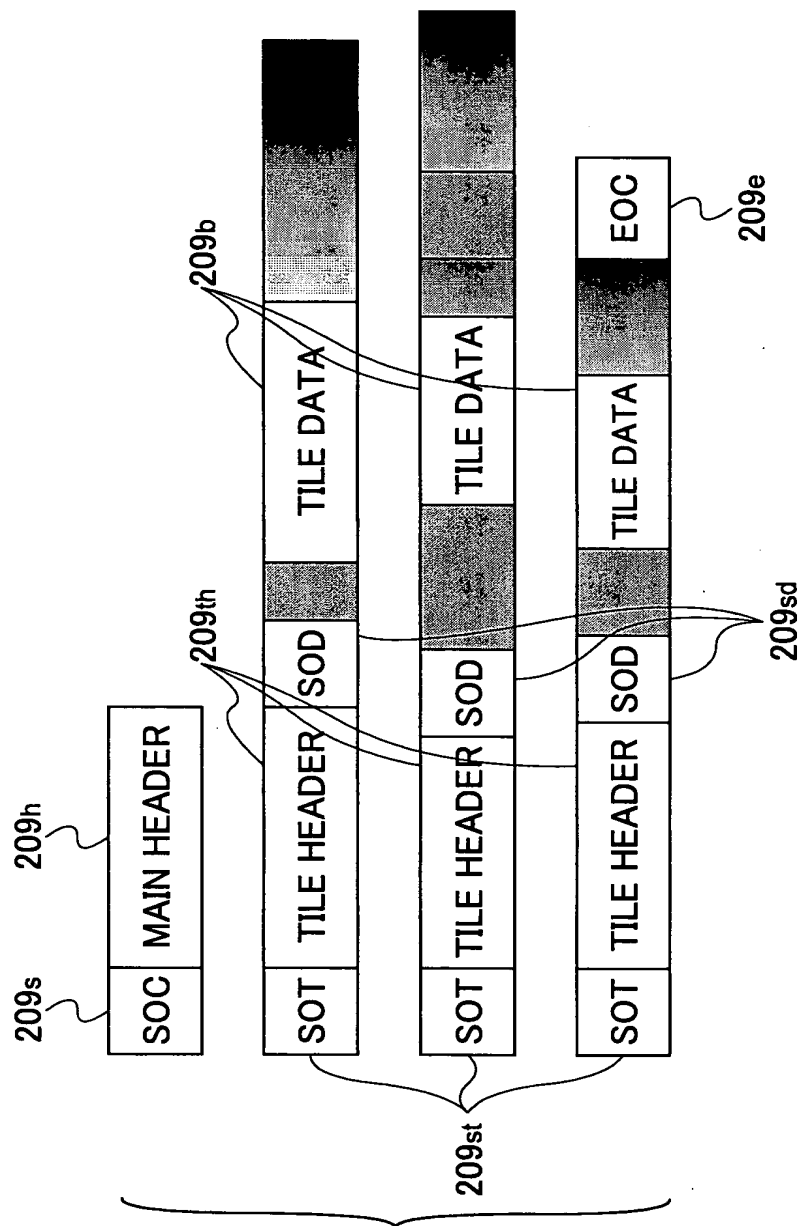


FIG.38

FIG.39

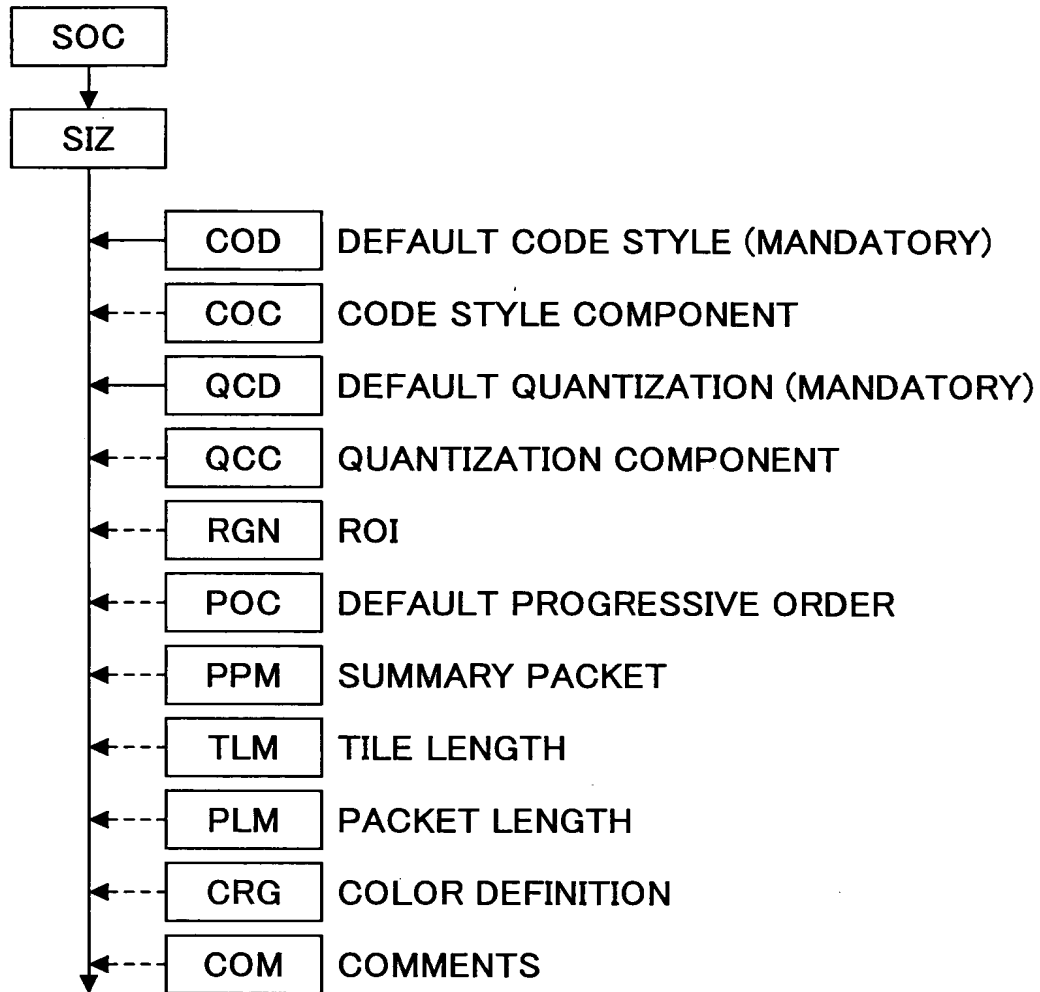


FIG.40

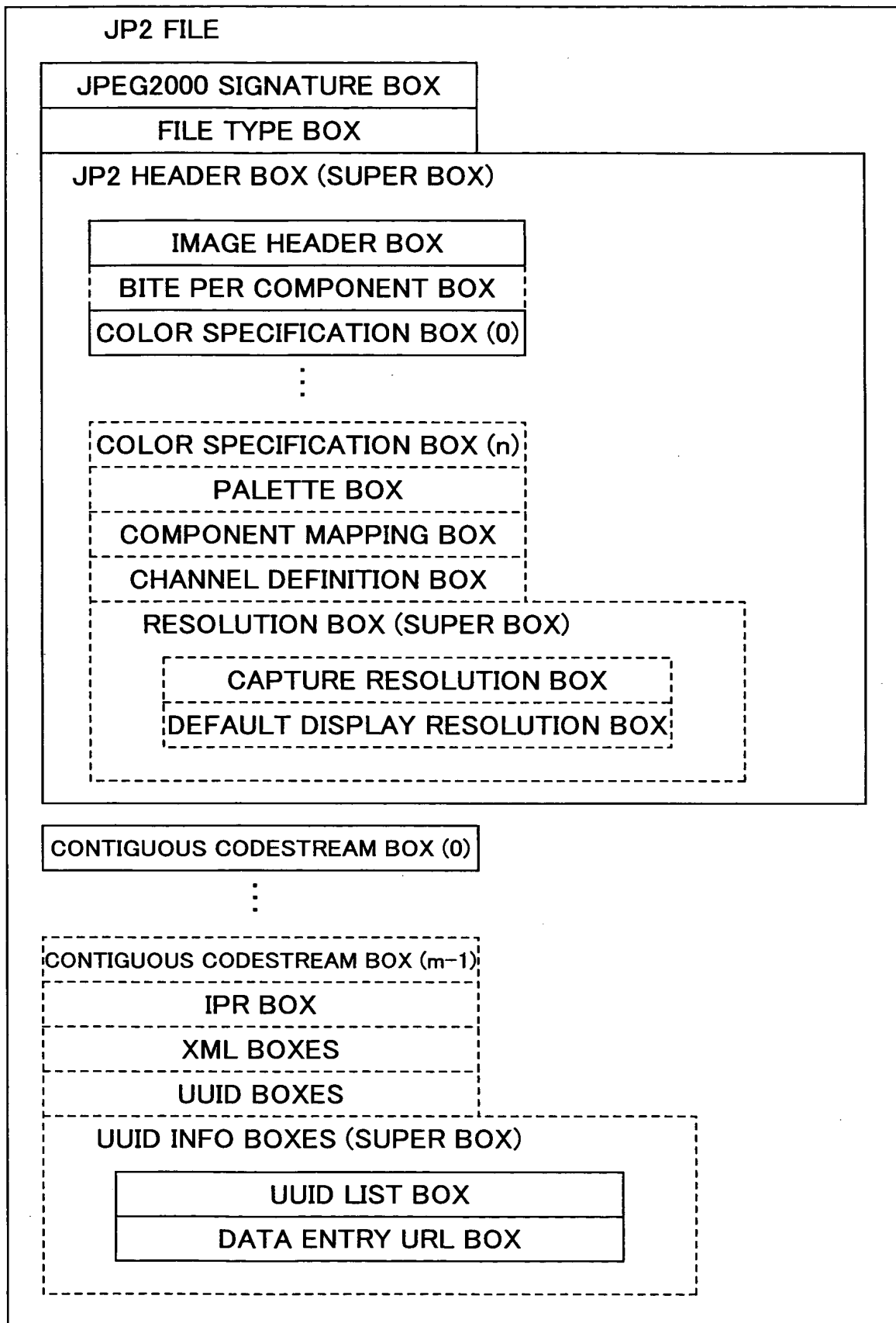


FIG.41

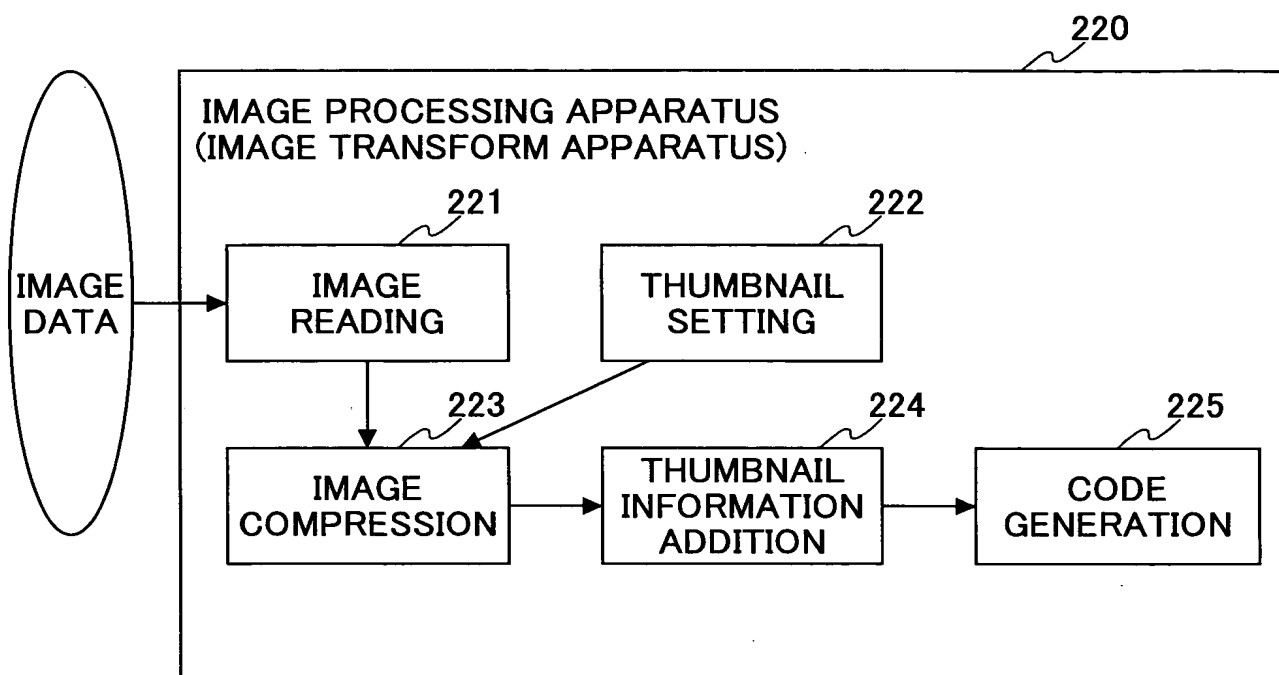


FIG.42

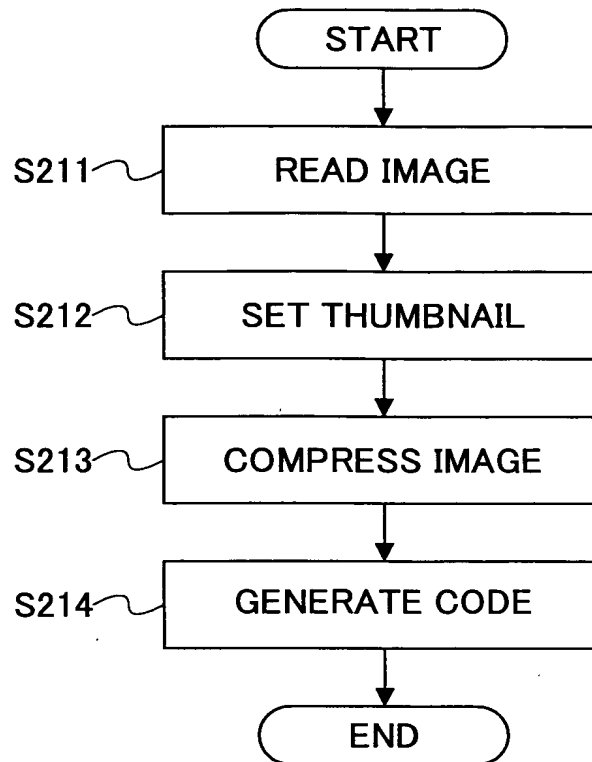


FIG.43

231

232

230

DISPLAY DEVICE (bps)	THUMBNAIL
DIGITAL CAMERA	CENTER TILE LAYER 3
IMAGE VIEWER SOFTWARE	DECOMPOSITION LEVEL 3 LAYER 5
CELLULAR PHONE	DECOMPOSITION LEVEL 5
DIGITAL VIDEO CAMERA	FRAME NUMBER: $2N+1$ DECOMPOSITION LEVEL 3
TV BROADCAST	ALL FRAMES TILES 6, 7, 10, 11 DECOMPOSITION LEVEL 3
HIGH-VISION BROADCAST	ALL FRAMES DECOMPOSITION LEVEL 3

FIG.44

240



FIG.45A



241

FIG.45B



242

FIG.45C



243

FIG.45D



244

FIG.46

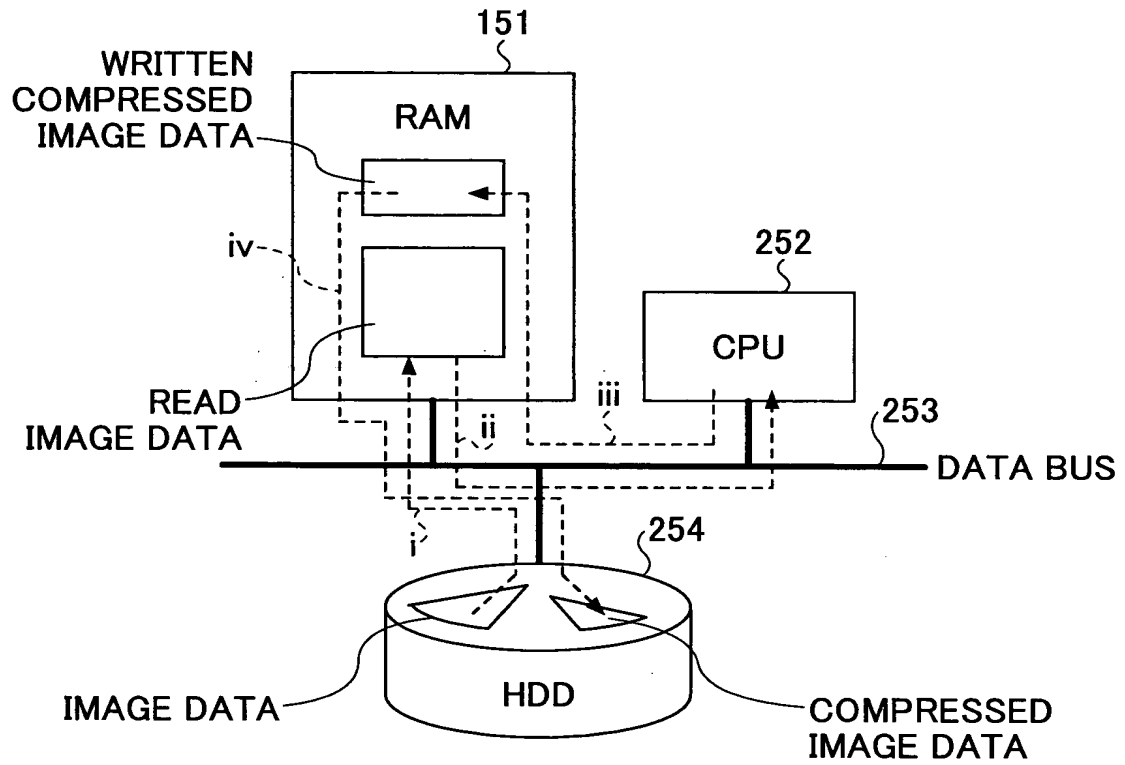


FIG.47

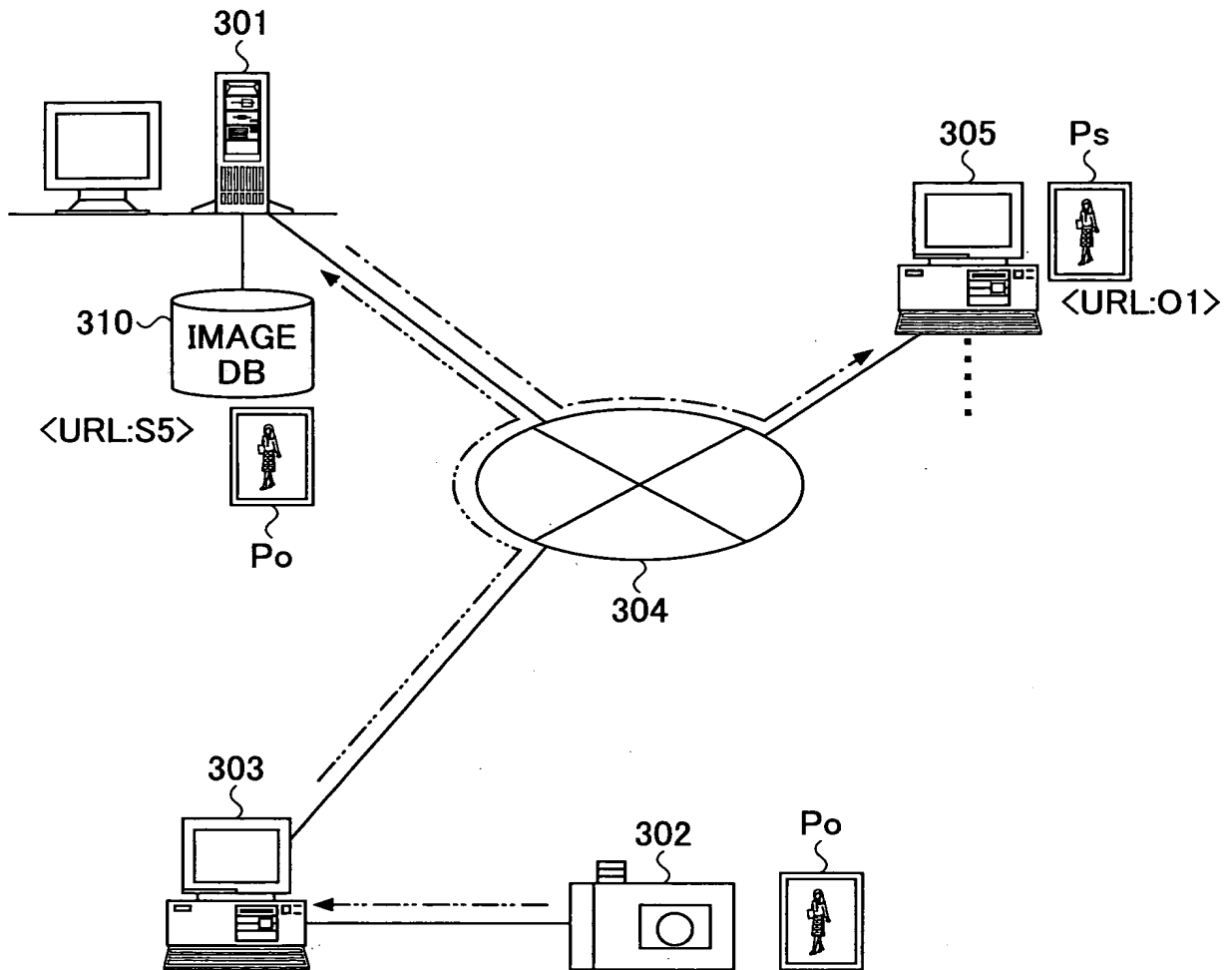


FIG.48

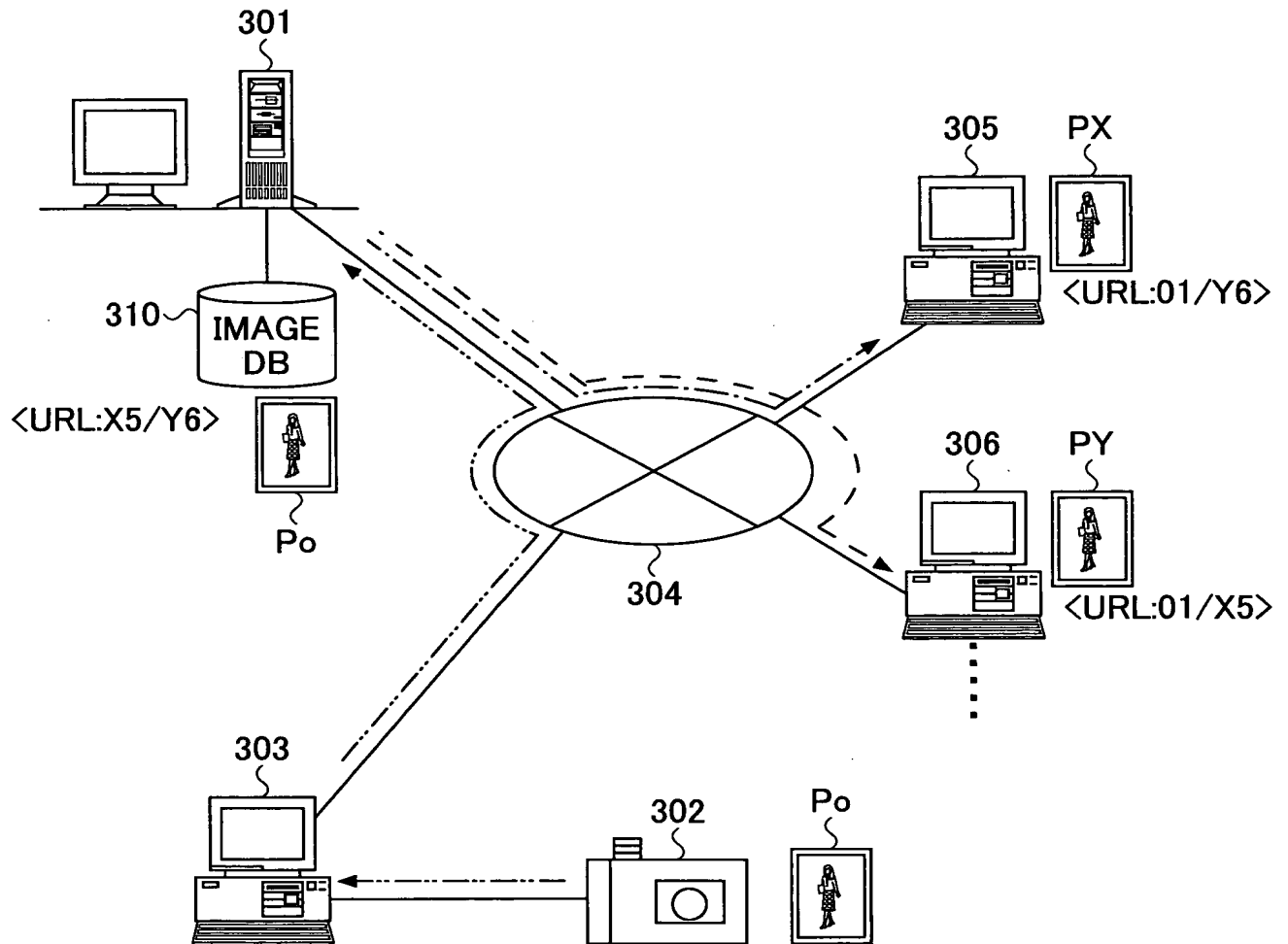


FIG.49

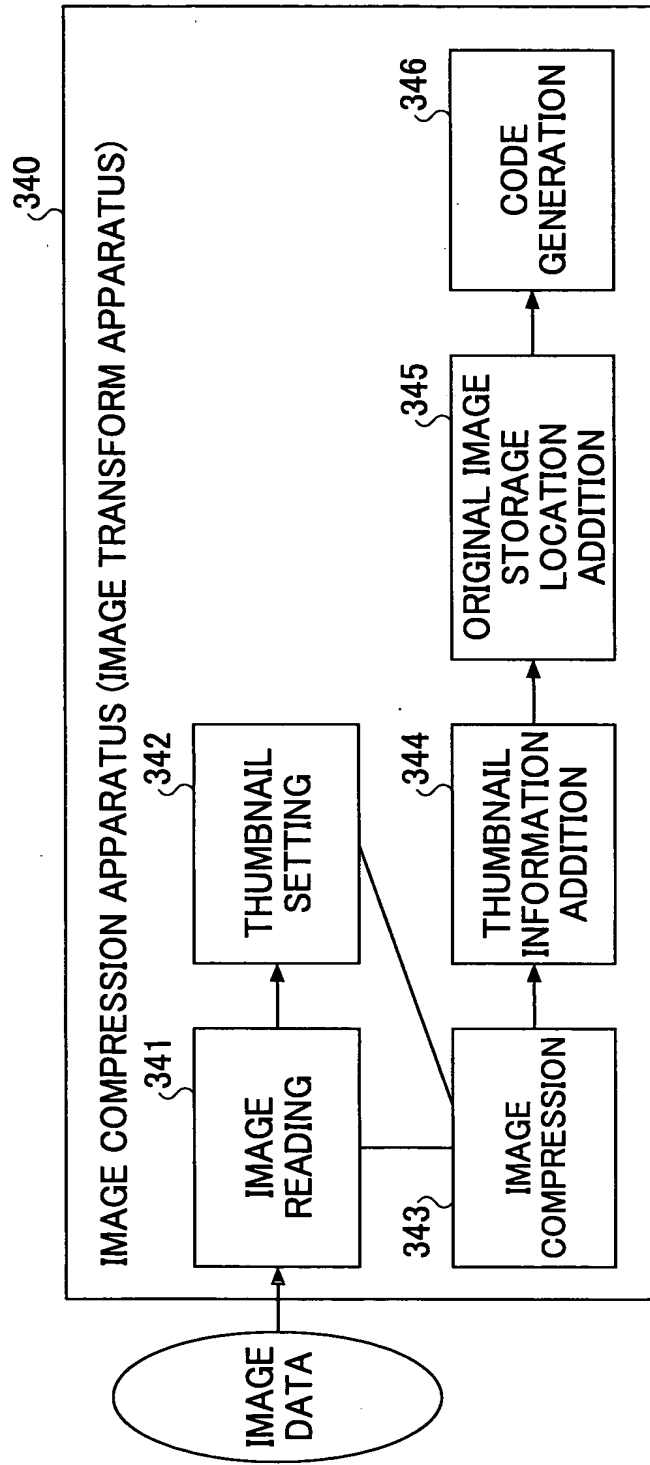


FIG.50

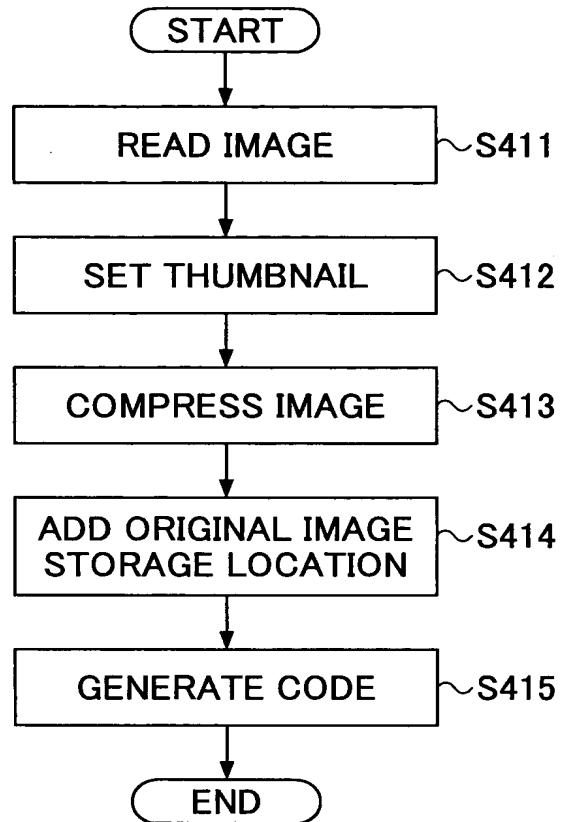


FIG.51A

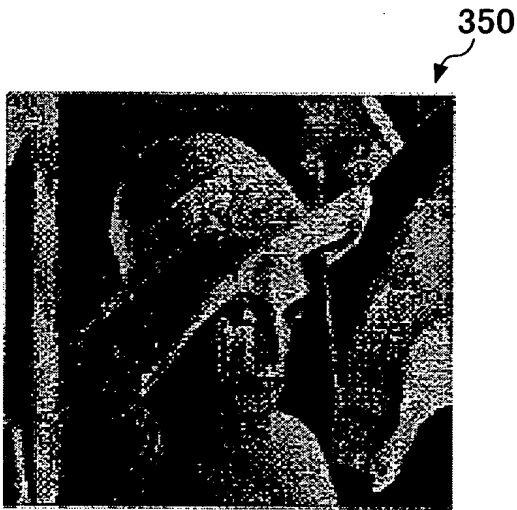


FIG.51B

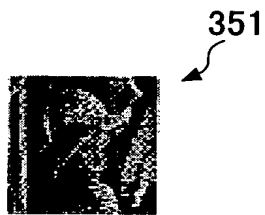


FIG.52

TAG DESCRIPTION LEVEL (2) - 0th IFD Exit Private Tag -

TAG NAME Field Name		TAG NUMBER		NON-COMPRESSION			COM-PRES-SION
		Dec	Hex	POINT ORDER	PLANE ORDER	YCC	
EXPOSURE TIME	ExposureTime	33434	829A	△	△	△	△
F NUMBER	FNumber	33437	829D	△	△	△	△
EXPOSURE PROGRAM	ExposureProgram	34850	8822	△	△	△	△
SPECTRAL SENSITIVITY	SpectralSensitivity	34852	8824	△	△	△	△
ISO SPEED RATE	ISOSpeedRatings	34855	8827	△	△	△	△
PHOTOELECTRIC CONVERSION FUNCTION	OECF	34856	8828	△	△	△	△
EXIF VERSION	Exif Version	36864	9000	⊙	⊙	⊙	⊙
ORIGINAL IMAGE DATA CREATED DATE	DateTimeOriginal	36867	9003	△	△	△	△
DIGITAL DATA CREATED DATE	DateTimeDigitized	36868	9004	△	△	△	△
MEANING OF EACH COMPONENT	ComponentsConfiguration	37121	9101	x	x	x	⊙
IMAGE COMPRESSION MODE	CompressedBitsPerPixel	37122	9102	x	x	x	△
SHUTTER SPEED	ShutterSpeedValue	37377	9201	△	△	△	△
APERTURE VALUE	ApertureValue	37378	9202	△	△	△	△
BRIGHTNESS VALUE	BrightnessValue	37379	9203	△	△	△	△
EXPOSURE CORRECTION VALUE	ExposureBiasValue	37380	9204	△	△	△	△
LENS MINIMUM F NUMBER	MaxApertureValue	37381	9205	△	△	△	△
SUBJECT DISTANCE	SubjectDistance	37382	9206	△	△	△	△
PHOTOMETRIC METHOD	MeteringMode	37383	9207	△	△	△	△
LIGHT SOURCE	LightSource	37384	9208	△	△	△	△
FLASH	Flash	37385	9209	△	△	△	△
LENS FOCAL LENGTH	FocalLength	37386	920A	△	△	△	△
MANUFACTURER'S NOTES	MakerNote	37500	927C	△	△	△	△
USER'S COMMENTS	UserComment	37510	9286	△	△	△	△
SUB SEC OF DATE TIME	SubSecTime	37520	9290	△	△	△	△
SUB SEC OF DATE TIME ORIGINAL	SubSecTimeOriginal	37521	9291	△	△	△	△
SUB SEC OF DATE TIME DIGITIZED	SubSecTimeDigitized	37522	9292	△	△	△	△
FLASH PIX VERSION	FlashPixVersion	40960	A000	⊙	⊙	⊙	⊙
COLOR SPACE INFORMATION	ColorSpace	40961	A001	⊙	⊙	⊙	⊙
EFFECTIVE IMAGE WIDTH	PixelXDimension	40962	A002	x	x	x	⊙
EFFECTIVE IMAGE HEIGHT	PixelYDimension	40963	A003	x	x	x	⊙
RELATED SOUND FILE	RelatedSoundFile	40964	A004	△	△	△	△
POINTER FOR INTEROPERABILITY IFD	Interoperability IFD Pointer	40965	A005	x	x	x	△
FLASH ENERGY	FlashEnergy	41483	A20B	△	△	△	△
SPATIAL FREQUENCY RESPONSE	SpatialFrequencyResponse	41484	A20C	△	△	△	△
FOCAL PLANE WIDTH RESOLUTION	FocalPlaneXResolution	41486	A20E	△	△	△	△
FOCAL PLANE HEIGHT RESOLUTION	FocalPlaneYResolution	41487	A20F	△	△	△	△
FOCAL PLANE RESOLUTION UNIT	FocalPlaneResolutionUnit	41488	A210	△	△	△	△
SUBJECT LOCATION	SubjectLocation	41492	A214	△	△	△	△
EXPOSURE INDEX	ExposureIndex	41493	A215	△	△	△	△
SENSOR METHOD	SensingMethod	41495	A217	△	△	△	△
FILE SOURCE	FileSource	41728	A300	△	△	△	△
SCENE TYPE	SceneType	41729	A301	△	△	△	△
CFA PATTERN	CFAPattern	41730	A302	△	△	△	△

MEANING OF SYMBOL:

- ⊙ MANDATORY (WHICH SHOULD BE DESCRIBED)
- SEMI-MANDATORY (WHICH SHOULD BE DESCRIBED UNLESS LIMITATION DUE TO HARDWARE OR SO)
- △ OPTIONAL (DESCRIBED AS NEEDED ACCORDING TO PARTICULAR DEVICE)
- x NOT BE DESCRIBED
- ※ NOT BE DESCRIBED SINCE DESCRIBED IN JPEG MARKER

FIG.53

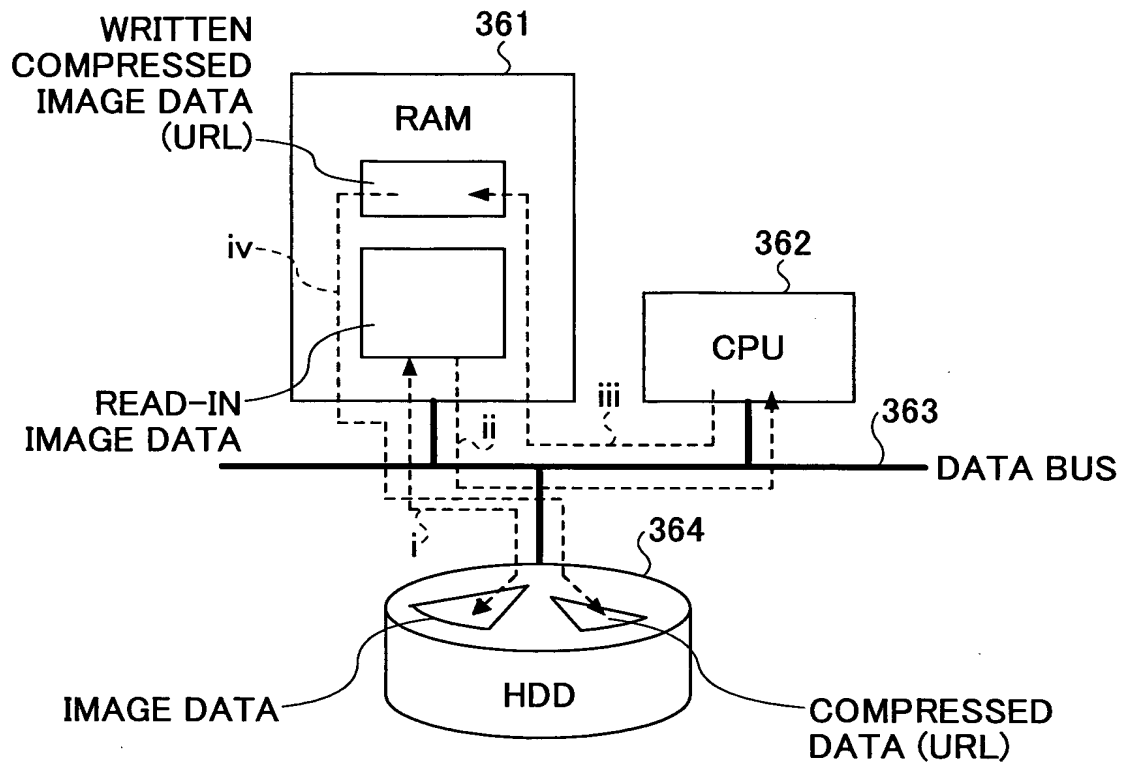


FIG.54

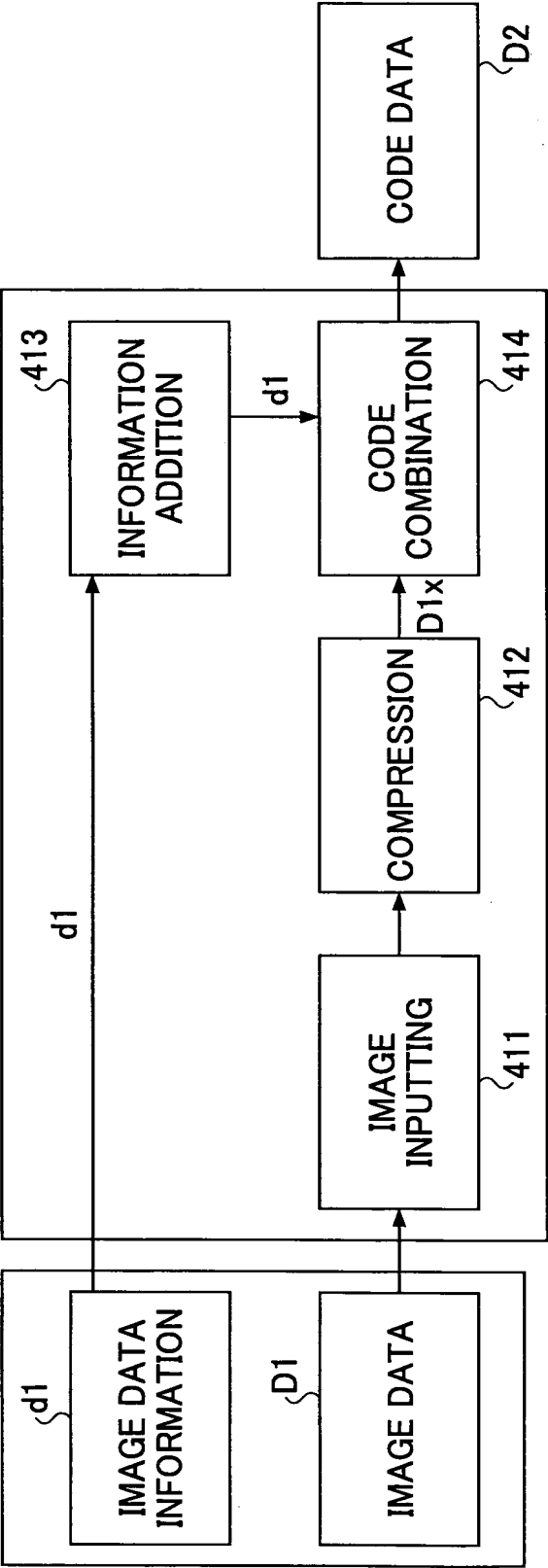


FIG.55

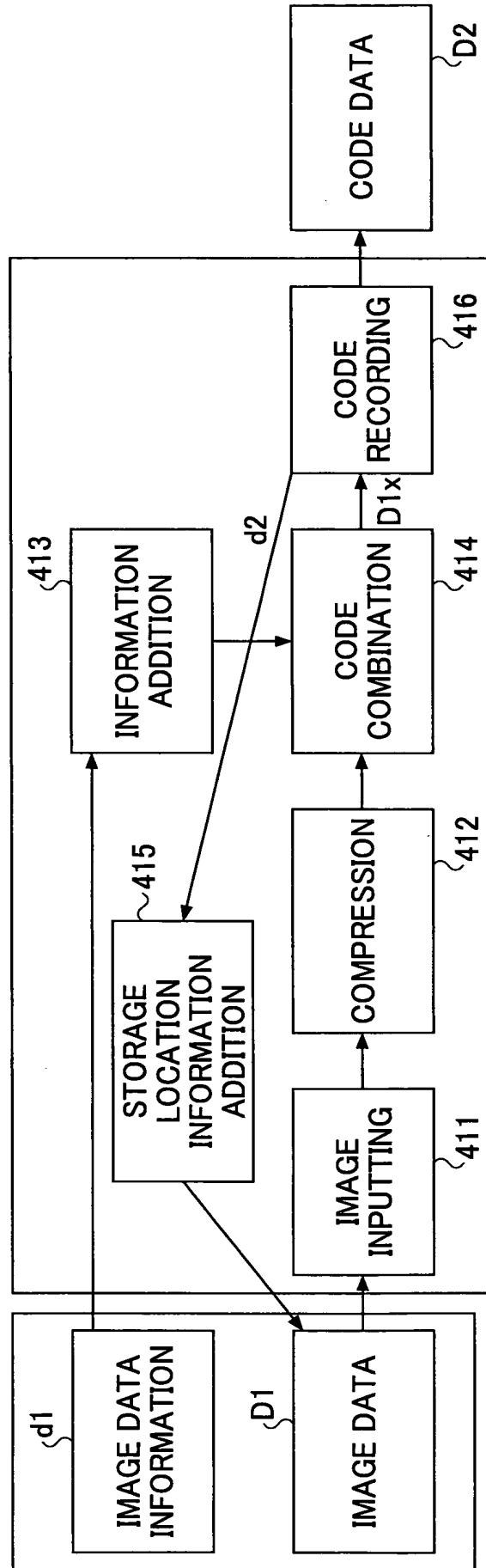


FIG.56

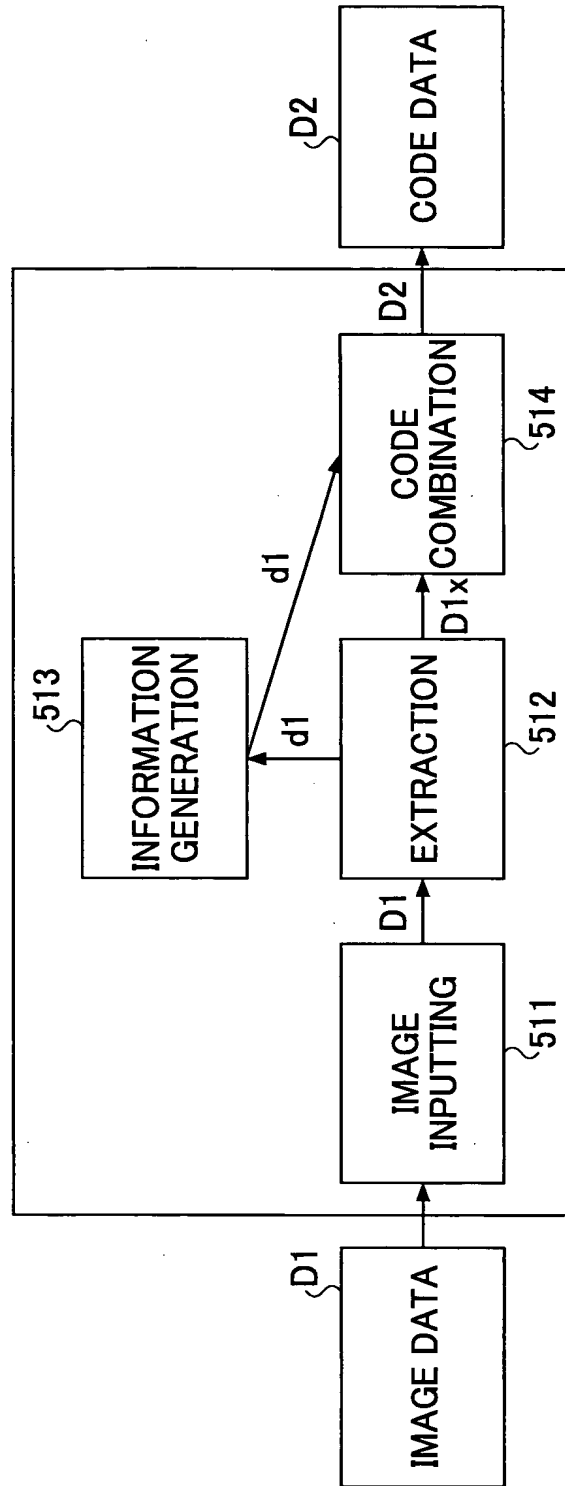


FIG.57

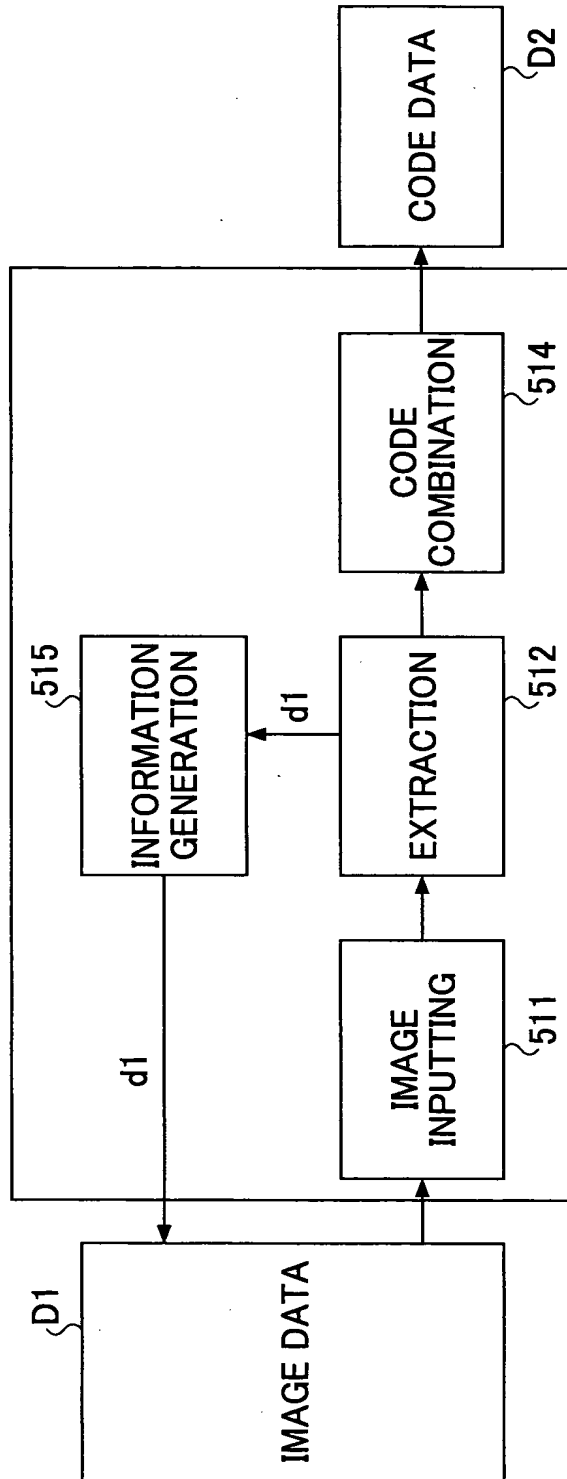


FIG.58

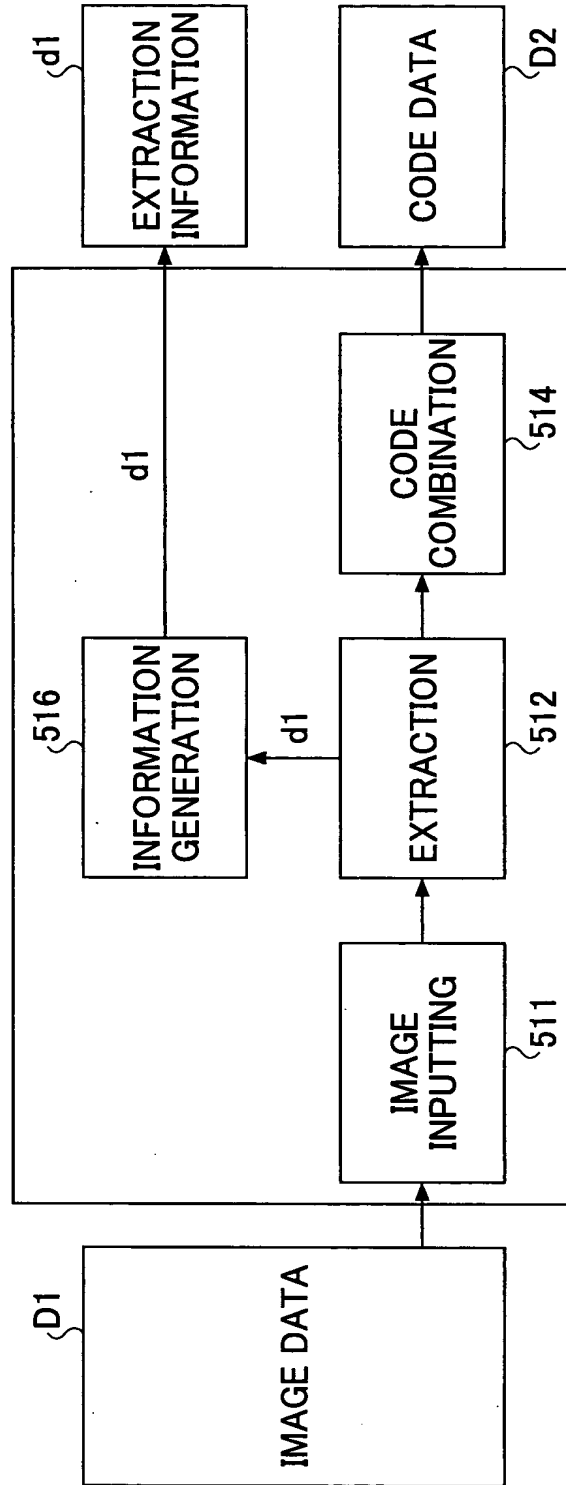


FIG.59

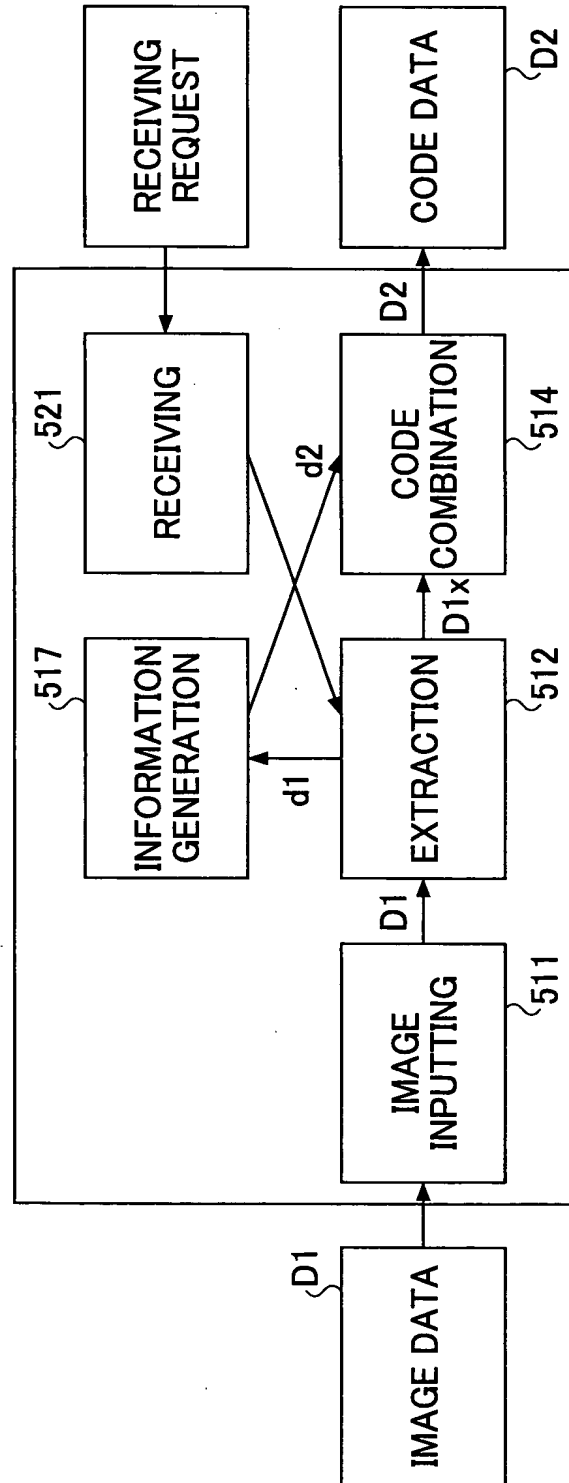


FIG.60

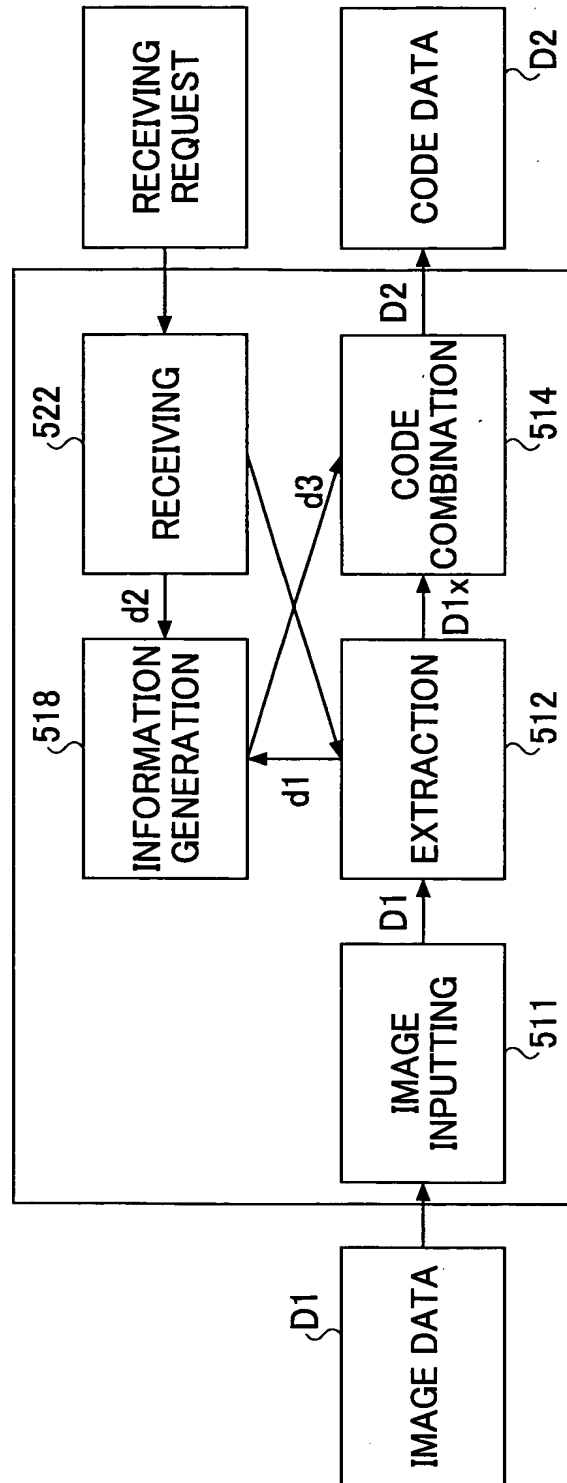


FIG.61

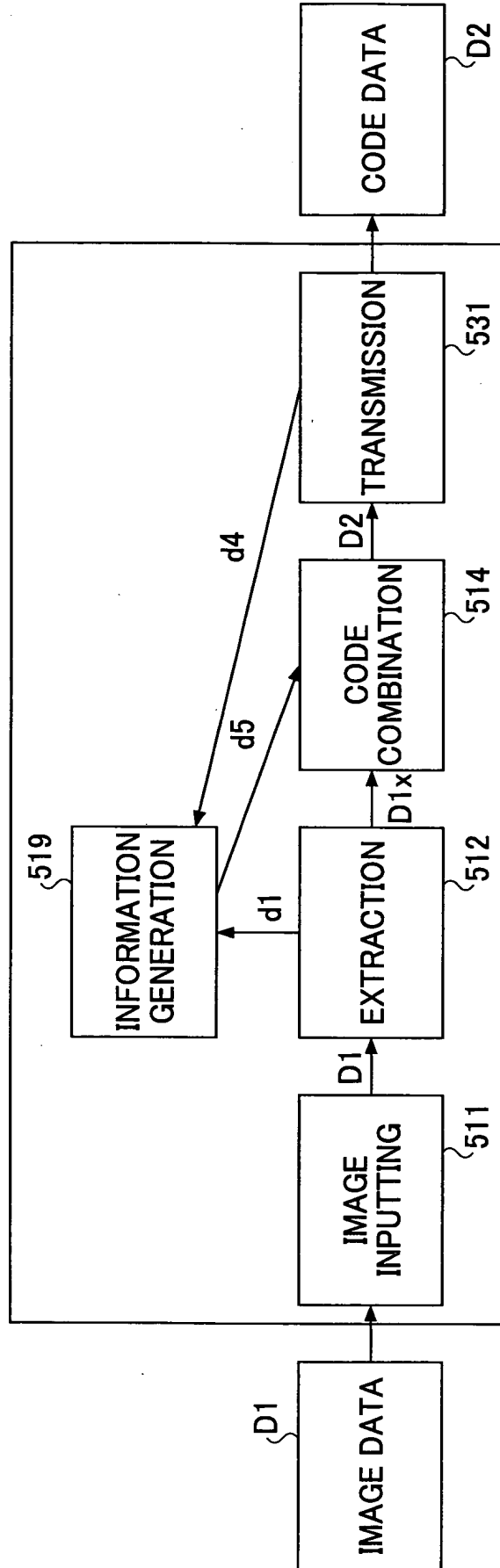


FIG.62

EMBEDDING INFORMATION		
IMAGE ATTRIBUT EMBED ORIGINAL IMAGE INFORMATION TO EXTRACTED IMAGE EMBED EXTRACTED IMAGE INFORMATION TO ORIGINAL IMAGE	SIZE	
	CRATED DATE/TIME	
	UPDATED DATE/TIME	
	COMMENTS	
	ACCESS DATE/TIME	
	POSSESSOR	
	CREATOR	
	TITLE	
	SUBJECT	
	CATEGORY	
	NUMBER OF PAGES	
	COPYRIGHT	
	COMPANY NAME	
	APPLIED SOFTWARE	
	COMPRESSION METHOD	JPEG、J2K、GIF、...
	COMPRESSION CONDITION:	IMAGE SIZE, POSITION OFFSET
		TILE SIZE, OFFSET
		PRECINCT SIZE
		CODE BLOCK SIZE
		PROGRESSION ORDER
		NUMBER OF LAYERS
		COLOR TRANSFORM
		NUMBER OF LEVELS
		QUANTIZATION PARAMETER
SENDER, RECEIVER SERVER, CLIENT	NAME	
	PC NAME	URL, IP ADDRESS
	TRANSFER METHOD	TCP/IP、HTTP、FTP
	DATE/TIME	
EXTRACTION CONDI TON	TILE NUMBER	
	PACKET NUMBER	
	EXTRACTING PACKET COMPONENT	RESOLUTION
		COLOR COMPONENT
		PRECINCT
		LAYER
	EXTRACTION TIME	